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FISHERIES STATISTICS OF JAPAN 1966

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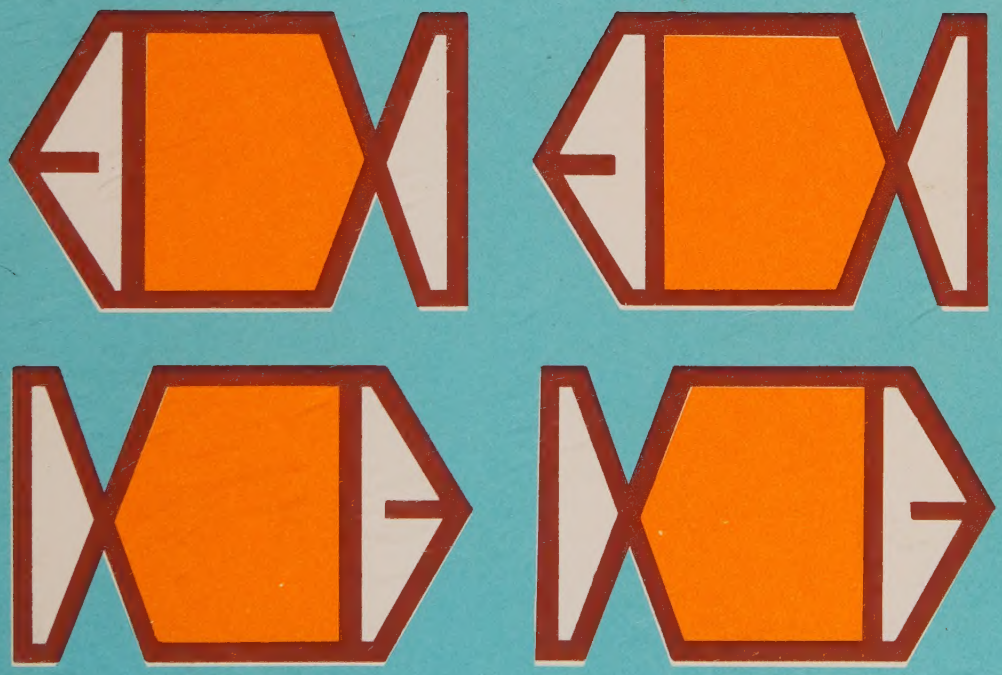

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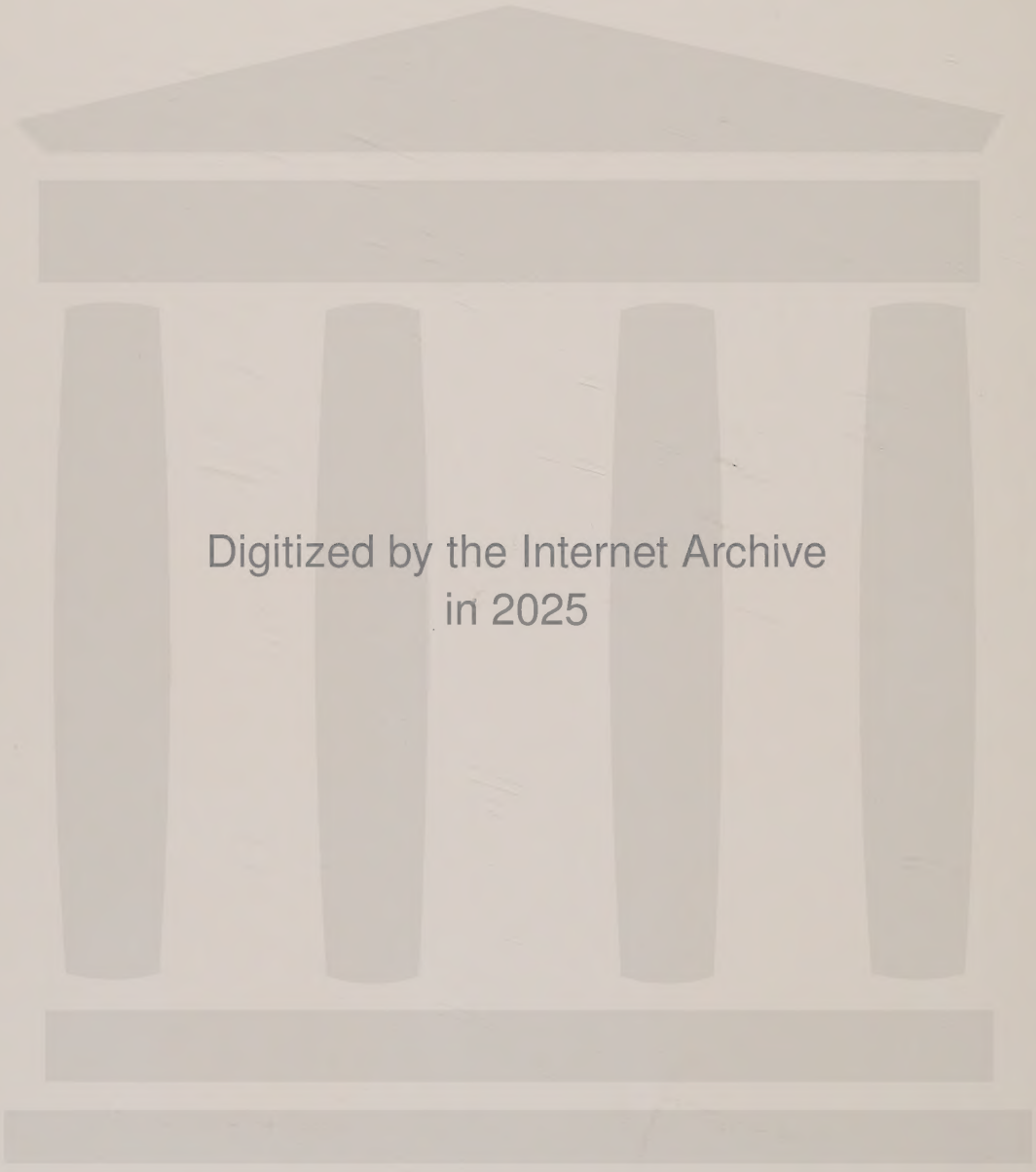
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FISHERIES STATISTICS OF JAPAN 1966

STATISTICS AND SURVEY DIVISION
MINISTRY OF AGRICULTURE AND FORESTRY
GOVERNMENT OF JAPAN

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FOREWORD

"Fisheries Statistics of Japan" is issued annually from 1963 edition by the Statistics and Survey Division, Ministry of Agriculture and Forestry.

This publication intends to introduce briefly for foreigners the present status of Japan's fisheries by means of statistics.

The statistics in this bulletin were mainly arranged both from "Annual Report of Catch Statistics on Fishery and Agriculture in 1966" and "Annual Report of Marketing of Fishery Products in 1966" published from the above Division.

For the purpose of helping right understandings of foreign readers on the species caught by Japanese fishermen, illustrations with scientific and English names are given at the end of the volume.

We hope this publication would serve to show a true picture on salient features of Japan's fisheries today.

July, 1968

Michio Iwamoto
Director, Statistics and Survey Division,
The Ministry of Agriculture and Forestry,
Government of Japan.

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GENERAL REVIEW

1. Japan's total catch

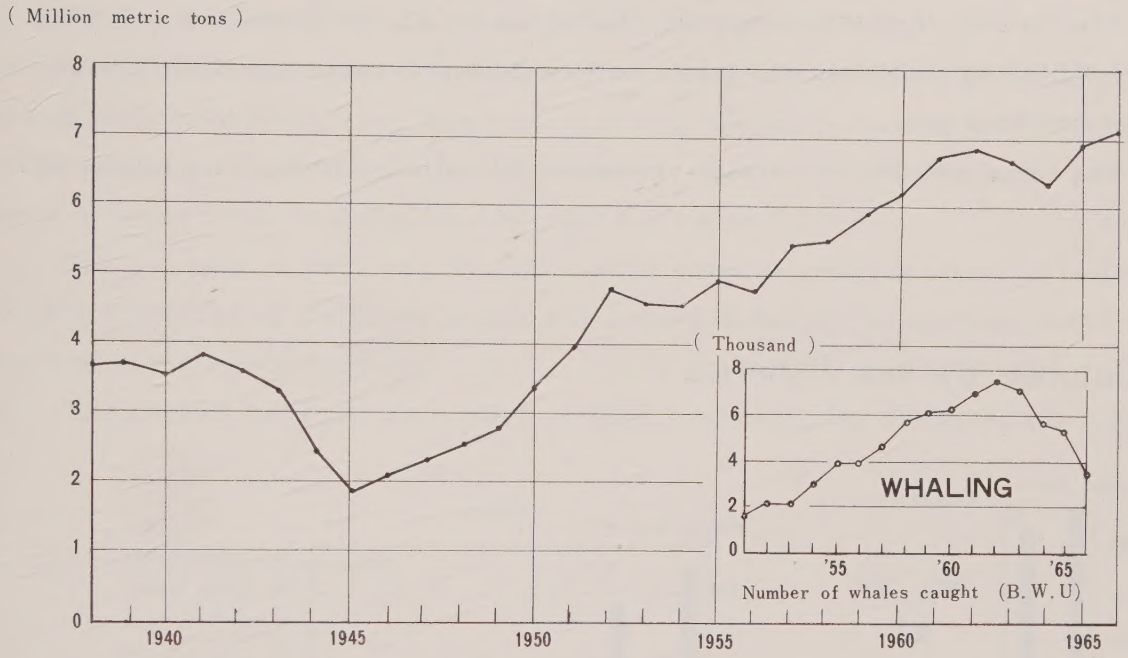


Fig. 1. JAPAN'S TOTAL CATCH, 1938~1966

(1) Total catch of fisheries and cultures on seas and inland waters in 1966 (excluding whalings) hit a new high of 7,103 thousand metric tons, passing at first 7 million tons level. This was 195 thousand metric tons or 2.8 percent higher than in the previous year and turned again upwards out of the heavy condition since the peak reached in 1962.

(2) As to total value(excluding whalings), this year gained 623,300 million yen (about 1,740 million U.S. dollars), 13 percent over the previous year, exceeding largely the increasing rate in quantity. This indicated main factor of the gain in value was attributed to higher prices for fishery products.

(3) Of the total catch, sea fisheries amounted to 6,558 thousand metric tons accouting for 93 percent and was 2.8 percent up the previous year. This was also over the past record of 6,397 thousand metric tons marked in 1962. The increase was mostly due to abundant ground fishes, such as alaska-pollack and flounders caught by trawlers in the North Pacific, and to skipjack by pole and line.

(4) The yield from the shallow sea cultures was up by 7 percent to 405 thousand metric tons compared with the previous year, because of a development of seaweed

(Undaria pinnatifida) culture.

(5) Total volume of inland water fisheries and cultures was 140 thousand metric tons, 4 percent down the previous year. The fisheries with 103 thousand metric tons fell by 9 percent, while the cultures with 36 thousand metric tons increased by 10 percent.

(6) The number of whales caught by whalings were 22,784 converted to 3,445 B.W.U. (Blne Whale Unit), which fell by 16 and 34 percent respectively compared with the previous year.

The value with 29,500 million yen (about 82 million dollars) also fell by 22 percent.

2. Catches by sea fisheries

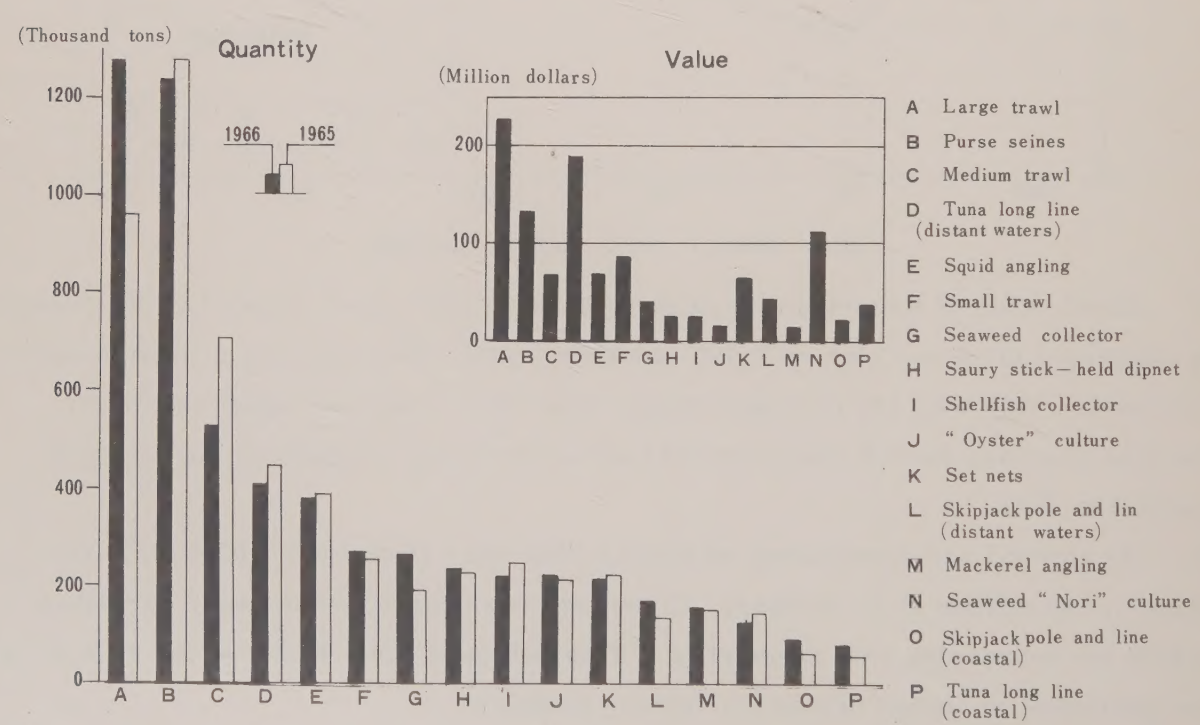


Fig. 2. CATCH BY TYPE OF FISHERIES

(1) Of the total catch from sea fisheries with 6,558 thousand metric tons, 1,703 thousand metric tons which accounted for 26 percent were produced from the distant waters fisheries, 2,984 thousand metric tons (46 percent) from the off-shore fisheries, and the rest of 1,873 thousand metric tons (28 percent) from coastal fisheries.

(2) The distant waters fisheries with 1,703 thousand metric tons rose by 6 percent more than the record year of 1,682 thousand metric tons in 1961, showing rapid recovery from the decline in 1963-64 which was the result of the trawlings in the North Pacific. In 1966, however, these trawlings had got over the bottom level and played an important role in the surplus, being accompanied with the development of the trawlers off the African coast and favorable catch of skipjack pole and line.

(3) The off-shore fisheries, whose yearly fluctuation would have great influences upon Japan's total catch, rose by 2.3 percent over the previous year of 2,917 thousand metric tons and also achieved the highest level, after recovering from the poorest result of saury stick-held dip net and squid angling in 1963-64.

The increase in 1966 was brought mainly from abundant landings of mackerel and jack mackerel by the purse seines and ground fishes by the medium-sized trawlings operated in the North Pacific.

(4) The coastal fisheries were slightly up (1.7 percent), but remained yet stagnant.

3. Catches by species

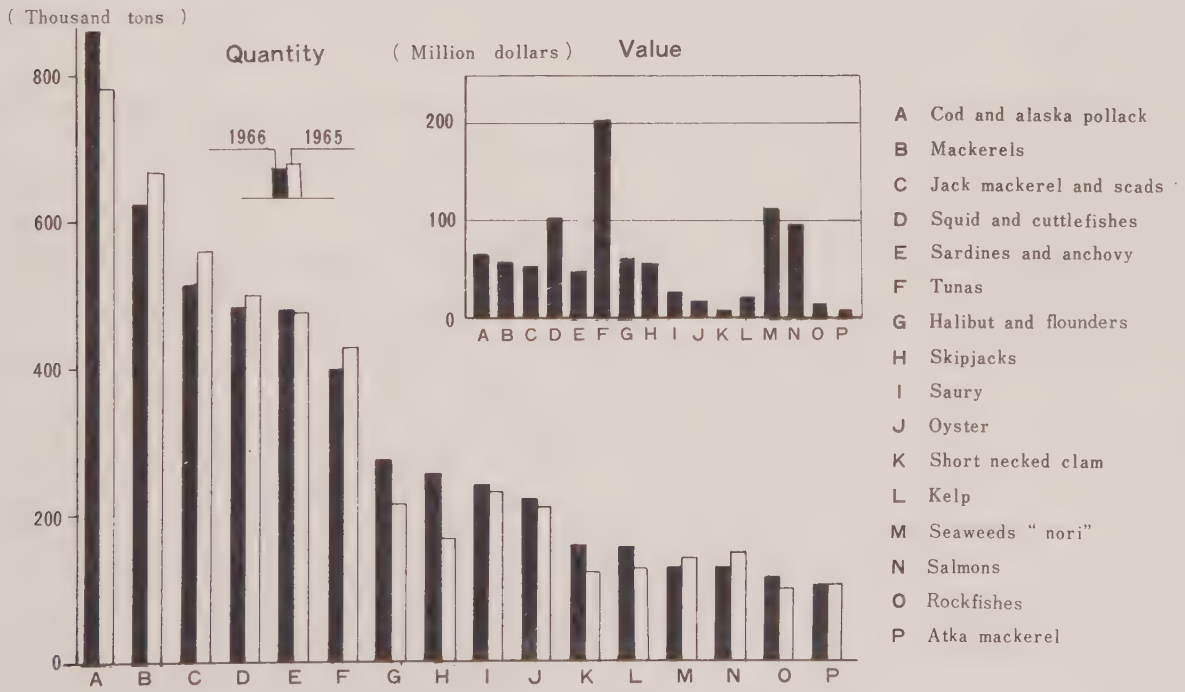


Fig. 3. CATCH BY MAJOR SPECIES

(1) Of the total catch, fishes totaled 5,313 thousand metric tons and accounted for 75 percent, shellfishes 597 thousand metric tons (8 percent), other molluscs and crustaceans 751 thousand metric tons (12 percent) and aquatic plants the rest of 437 thousand metric tons (6 percent).

Comparing with the previous year, fishes rose by 138 thousand metric tons or 2.8 percent. Shellfishes and aquatic plants also rose by 37 and 35 thousand metric tons, respectively. While only the other molluscs and crustaceans dropped 13 thousand metric tons.

(2) Major species which experienced remarkable increase in 1966 were alaska pollack, flounders, and skipjack, while mackerel, jack mackerel, tunas and sand lance reduced.

(3) Cod and alaska pollack with 861 thousand metric tons were the largest fishes in quantity constituting 12 percent, and increased by 80 thousand metric tons or 10 percent more than the previous year. These fishes, caught mainly by trawlings in the North Pacific, have been remarkably expanding since the year of 1962.

Mackerel and jack mackerel, major species aimed by the purse seines, amounted to 624 and 477 thousand metric tons respectively in 1966. Although being in upward trend, they declined by 7 and 9 percent respectively from a year earlier.

Squid and cuttlefishes totaled 485 thousand metric tons and dropped nearly 3 percent from the previous year.

Tunas, majar Japan's exporting fishes, amounted to 398 thousand metric tons and were 32 thousand metric tons or 8 percent less than the previous year, remained at the same level as ever.

Skipjack showed big catch of 229 thousand metric tons in 1966 and exceeded by 93 thousand metric tons or 68 percent of the previous year. This fish has continued upward trend running for four years since 1962.

4. Foreign trade

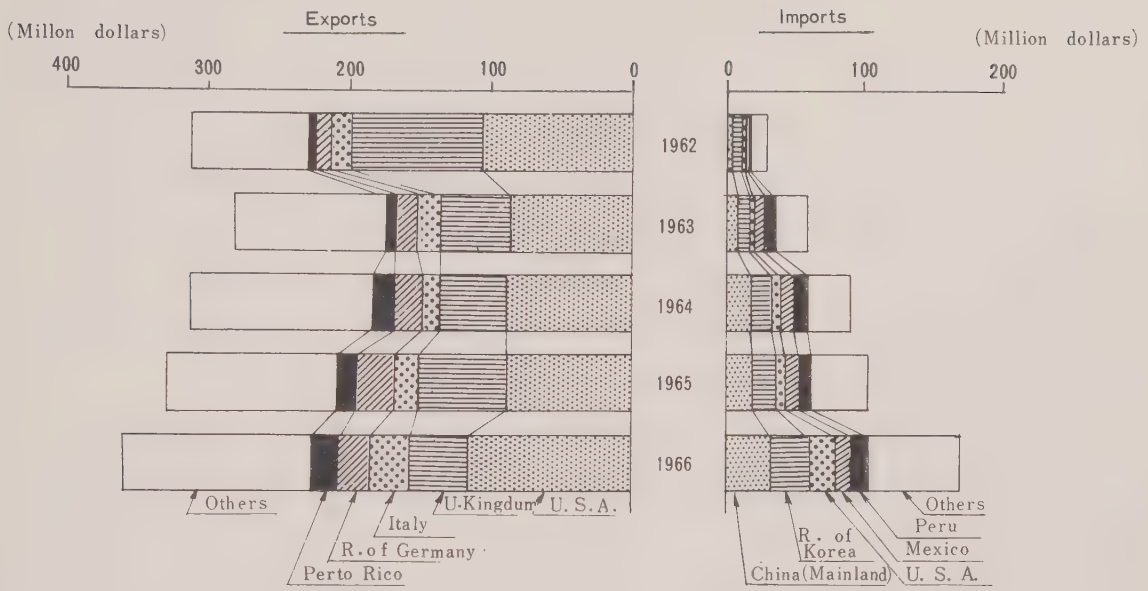


Fig. 4. VALUE OF EXPORTS AND IMPORTS, BY COUNTRIES

(1) Imports of fishery products

Imports of fishery products are increasing year after year and totaled 60,300 million yen (about 167.5 million U.S. dollars) in 1966. They have jumped up highly by seven times for these five years of 1962-1966, mostly due to the increase of eleven times for food use.

Imports for food use in 1966 valued at 45,100 million yen (about 125.3 million U.S. dollars), 69 percent up the previous year, mainly due to heavier imports of highly priced fishes, such as shrimps and yellowtails. Especially, fresh-frozen shrimps with a value of 22,500 million yen (about 62.5 million U.S. dollars) provided about half of the value of imports, and were mainly imported from China (Mainland), Mexico, Thailand and Hong Kong.

Imports for non-edible use amounted to 15,300 million yen (about 42.5 million U.S. dollars), 42 percent over the previous year, of which fish meal with 6,700 million yen (about 18.6 million U.S. dollars) was the largest commodity. Fish meal fell by 15 percent in quantity, but increased by 13 percent in value compared with the previous year. This discrepancy between quantity and value was caused by firm market prices supported by strong domestic demands for fish meal, which were resulted from the decline of fish meal production in Peru, leading exporting country in the world.

(2) Exports of fishery products

Exports of fishery products in 1966 valued at 130,300 million yen (about 361.9 million U.S. dollars) and have increased by 58 percent for these five years. Exports for food use have particularly increased by 67 percent, but for non-edible use have stayed at the level of 37 percent increase.

Exports for food use are rising year by year in accordance with an increase of demands abroad. Exports in 1966 reached 98,500 million yen (about 273.6 million U.S. dollars) and went up 15 percent compared with the previous year. Especially, frozen and dried salted products increased in 1966, mostly due to advances of prices rather than the growth in quantity.

Exports for non-edible use in 1966 valued at 318,000 million yen (about 88.3 million U.S. dollars), 5 percent less than in 1965 due to the depression of pearls and fish oil exports.

Major countries of destination of exports show a tendency to be centered in the developed countries with purchasing power such as United States and European countries, which account for about 80 percent of the total. However, 1966 exports of canned products for the Southeast Asia increased.

5. Fishery processed products

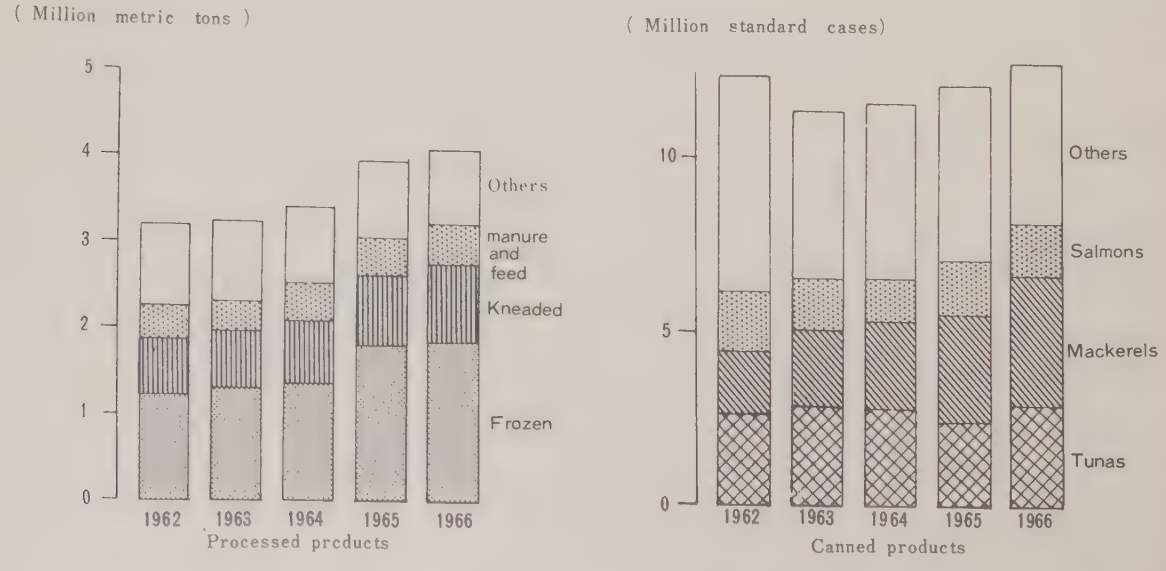


Fig. 5. PROCESSED FISHERIES PRODUCTS

Total production of processed fishery products (including frozen products) has been increasing since 1962 and stood at 4,055 thousand metric tons in 1966, 3 percent up from the previous year.

Of the total, the production for frozen products constituted 45 percent, followed by 39 percent for foodstuff, 14 percent for fish oil, feeds and manures; and 2 percent for dried sea weeds. Comparing with the previous year, foodstuff and dried sea weeds rose by 9 and 8 percent respectively, while fish oil, feeds and manures fell by 5 percent.

With regard to trend during 1961-1966, frozen products showed the highest growth in comparison with the other fishery products, although the rate of increase was down from 1965, totaling 1,826 thousand metric tons in 1966. Kneaded products and wet salted products showed gradual increasing trend and reached 895 and 167 thousand metric tons, respectively in 1966. Fish oil, feeds, manures, canned products and dried fish products have remained unchanged, while dried salted and smoked products have been in decreasing trend.

TABLE 1 — 1 SUMMARY OF WORLD CATCH, 1962—1966

Unit ; Thousand metric tons

	1962	1963	1964	1965	1966
GRAND TOTAL	**46,900**	**48,200**	**52,500**	**53,300**	**56,800**
By country					
Peru	6,958	6,899	9,117	7,462	8,789
Japan	6,867	6,699	6,351	6,879	7,103
U.S.S.R.	3,617	3,977	4,476	5,100	5,349
Norway	1,332	1,388	1,608	2,307	2,849
U.S.A.	2,973	2,777	2,647	2,724	2,515
Chile	639	762	1,161	709	1,384
India	974	1,046	1,320	1,331	1,368
Spain	1,108	1,125	1,204	1,342	1,357
Canada	1,124	1,198	1,211	1,262	1,349
Iceland	832	785	973	1,199	1,240
U. Kingdom 1/	944	961	974	1,047	1,067
By continent					
Africa	2,640	2,780	3,050	3,090	3,100
America, North	4,490	4,380	4,300	4,410	4,400
America, South	8,280	8,420	11,010	9,000	11,080
Asia	19,130	19,530	19,820	20,950	21,180
Europe	8,640	8,990	9,740	10,860	11,530
Oceania	140	140	150	160	170
U.S.S.R.	3,617	3,977	4,476	5,100	5,349

1/ Excluding the landings at foreign ports.

TABLE 1 — 2 WORLD CATCH BY MAJOR SPECIES AND COUNTRIES, 1966.

Unit ; Thousand metric tons

	Total	Flatfishes	Cods	Mackerels and scads	Herrings and anchovies	Tunas and skipjacks	Molluscs
World Total	**56,800**	**1,090**	**7,727**	**2,675**	**18,183**	**1,058**	**2,910**
Peru	8,789	1	-	12	8,532	83	6
Japan	7,103	273	861	1,133	470	611	1,158
U.S.S.R.	5,349	198	1,694	154	1,356	0	1
Norway	2,849	21	646	484	1,199	1	2
U.S.A.	2,515	76	129	23	659	128	610
Chile	1,384	0	94	18	1,153	13	42
India	1,368	7	3	-	253	-	1
Spain	1,357	15	523	86	221	36	188
Canada	1,349	152	414	12	390	1	81
Iceland	1,240	9	275	-	771	-	0
U. Kingdom	1,067	63	688	4	197	0	18

TABLE 2—1 SUMMARY OF JAPAN'S TOTAL CATCH

Unit { Quantity ; Thousand tons
Value ; Million dollars
Whalings ; Number

Year	Sea Fisheries		Shallow Sea Cultures		Inland water Fisheries		Inland water Cultures		Total		Whalings	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1940	3,427	---	78	---	---	---	19	---	3,526	---	9,628	---
1945	1,750	---	61	---	---	---	12	---	1,824	---	531	---
1950	3,255	---	48	---	63	---	5	---	3,373	---	5,332	---
1955	4,658	474	153	49	82	15	11	5	4,907	542	11,866	39
1960	5,817	828	284	94	74	22	15	13	6,192	1,023	19,649	65
1962	6,397	991	362	149	84	26	20	19	6,864	1,259	22,237	74
1963	6,200	1,108	389	180	84	27	23	26	6,698	1,427	22,370	86
1964	5,868	1,122	362	201	89	28	29	31	6,350	1,472	24,409	90
1965	6,382	1,254	380	228	113	28	33	35	6,908	1,649	26,986	104
1966	6,558	1,390	405	271	103	33	36	46	7,103	1,822	22,784	82

TABLE 2—2 PRODUCTION INDEX

Year	Sea Fisheries	Shallow Sea Cultures	Inland water Fisheries	Inland water Cultures	Total	Whalings
1962	99.3	94.4	93.6	54.0	98.1	109.8
1963	98.5	94.2	87.2	66.1	97.0	99.8
1964	94.8	82.9	92.8	87.8	93.4	98.9
1965	100.0	100.0	100.0	100.0	100.0	100.0
1966	102.1	101.7	91.0	105.5	100.3	75.9

TABLE 3 SUMMARY OF TOTAL CATCH BY SPECIES

Unit: Thousand Metric tons

Year	Fishes	Crustaceans	Molluscs	Others	Total
1962	5,049	151	1,188	476	6,865
1963	4,797	161	1,336	404	6,698
1964	4,906	154	960	331	6,351
1965	5,266	133	1,138	371	6,908
1966	5,318	143	1,148	494	7,103

TABLE 4 SUMMARY OF TOTAL CATCH BY AREAS

Unit ; Thousand metric tons

Areas	1964	1965	1966
Marine			
Pacific Ocean	5,898,256	6,364,731	6,603,770
Fishes	4,522,711	4,854,918	4,929,097
Crustaceans	152,853	131,639	141,499
Molluscs	894,369	1,010,106	1,041,687
Others	328,323	368,068	491,487
Indian Oceans	81,429	91,051	87,405
Fishes	81,429	91,048	87,405
Crustaceans	-	-	-
Molluscs	-	3	0
Others	-	-	-
Atlantic Ocean	252,049	305,652	271,766
Fishes	220,955	233,673	215,629
Crustaceans	310	-	466
Molluscs	30,784	71,979	55,671
Others	-	-	-
Inland			
Fishes	118,972	146,237	139,641
Crustaceans	80,476	86,434	85,587
Molluscs	981	1,123	1,237
Others	35,029	56,192	50,329
Total	**6,350,706**	**6,907,671**	**7,102,582**

TABLE 5 QUANTITY AND VALUE BY TYPE OF FISHERIES 1

Quantity ; Metric tons
Value ; Thousand dollars

Type of Fisheries	1964		1965		1966	
	Quantity	Value	Quantity	Value	Quantity	Value
Sea Fisheries						
Distant Waters						
King crab gill net	28,267	15,272	24,678	13,739	24,851	16,078
Salmon drift gill net	44,449	44,364	45,430	52,183	38,930	41,097
Tuna long line	452,174	165,475	441,406	171,678	403,370	188,814
Large trawls	968,690	2/ 159,333	1,089,701	2/ 174,317	1,276,906	226,603
Skipjack pole and line	119,436	27,647	131,952	36,467	168,279	43,986
Total	1,544,028	412,108	1,603,656	448,383	1,912,336	516,578
Coastal and Offshore Waters						
Medium trawls	677,017	72,056	574,291	84,761	528,531	67,875
Small trawls	230,311	67,922	252,994	70,839	268,839	85,442
Purse seines	1,011,512	119,269	1,275,835	136,203	1,234,875	133,086
Other surrounding nets	42,714	6,919	40,153	7,761	41,249	8,381
Salmon drift gill net	45,344	33,761	59,730	41,931	50,475	41,569
Other gill nets	251,930	49,250	210,650	51,892	253,114	61,581
Tuna long line	55,109	23,289	58,381	26,658	78,942	38,119
Other long lines	167,784	37,269	164,918	48,786	149,900	51,608
Saury stick-held dip net	202,309	16,781	226,700	26,136	234,739	27,744
Other lift nets	91,490	10,642	111,162	11,775	90,965	10,875
Skipjack pole and line	64,165	13,675	62,896	16,242	90,375	22,111
Squid angling	237,163	39,264	386,955	44,347	378,502	68,119
Other anglings	238,739	47,447	236,517	52,386	230,538	54,200
Set nets	219,241	57,689	221,547	67,339	212,744	67,397
Sellfish collectings	203,284	22,072	192,437	22,378	217,974	26,417
Seaweed collectings	244,218	30,842	248,118	35,778	265,670	41,153
Others	273,359	61,644	325,178	60,903	317,878	67,892
Total	4,324,698	709,822	4,777,973	806,161	4,645,310	873,569
Total	**5,868,732**	**1,121,936**	**6,381,629**	**1,254,494**	**6,557,646**	**1,390,147**
Shallow Sea Cultures 3/						
Pearl culture	86	69,636	100	86,719	118	102,172
Oyster culture	240,564	13,828	210,603	15,997	221,139	17,992
Seaweed "Nori" culture	111,851	107,289	140,753	102,031	128,440	112,389
Others	10,492	10,381	28,344	22,833	55,598	38,936
Total	**362,993**	**201,136**	**379,800**	**227,583**	**405,295**	**271,489**
Inland Water Fisheries						
Total	**89,201**	**28,197**	**113,148**	**27,914**	**103,266**	**32,647**
Inland Water Cultures						
Total	**29,780**	**30,969**	**33,094**	**34,881**	**36,375**	**45,500**
Grand Total	**6,350,706**	**1,382,242**	**6,907,671**	**1,544,872**	**7,102,582**	**1,739,784**

1/ Excluded whalings

2/ Excluding Value of medium trawlers operated on the North Pacific Ocean, but included value of medium trawlers operated on the coastal and offshore waters.

3/ Total amounts of mother pearl shells and seeds of seaweeds and oysters are excluded from the total quantity of products, though their total value are included in the total value of products.

TABLE 6 QUANTITY AND VALUE BY SPECIES

Quantity; Metric tons
Value ; Thousand dollars

Species	1964		1965		1966	
	Quantity	Value	Quantity	Value	Quantity	Value
Grand Total	**6,350,706**	**1,471,981**	**6,907,671**	**1,649,339**	**7,102,582**	**1,821,797**
Freshwater fishes	**64,282**	**28,395**	**67,614**	**28,692**	**65,746**	**33,842**
River eel	**16,194**	**22,928**	**18,820**	**26,142**	**19,841**	**35,881**
Salmons, trouts, smelts, etc	**126,667**	**80,228**	**156,182**	**105,761**	**136,368**	**100,936**
Flounders, halibuts, soles, etc	**263,107**	**45,531**	**216,266**	**48,025**	**272,969**	**60,467**
Cods, hakes, haddocks, etc	**779,161**	**49,822**	**780,983**	**65,833**	**860,637**	**66,403**
Alaska Pollack	683,880	11,478	690,895	12,969	774,788	11,372
Pacific cod	95,281	38,344	90,088	52,864	85,849	55,031
Redfishes, basses, congers, etc	**550,025**	**112,025**	**572,680**	**114,651**	**557,613**	**131,864**
Atka mackerel	204,888	8,967	107,288	7,269	106,016	8,706
Croakers	73,684	22,297	100,722	24,903	98,381	27,064
Gurnards	17,560	2,492	14,147	2,311	16,128	2,508
Launce	55,176	3,550	111,706	5,383	71,152	5,183
Lizardfishes	17,065	4,797	23,124	6,003	23,233	6,581
Rockfishes	76,709	11,672	107,795	14,058	128,036	19,611
Sandfish	22,196	2,272	32,312	3,022	36,118	2,956
Sea-breams	48,119	40,489	40,105	36,394	39,149	41,261
Jacks, mullets, etc	**817,911**	**113,586**	**882,204**	**137,712**	**845,821**	**142,661**
Dolphinfishes	9,896	1,897	7,474	1,481	11,556	2,278
Flying fishes	12,212	2,339	12,001	2,461	10,018	2,508
Jack mackerel	496,451	49,819	526,885	52,731	477,084	49,667
Saury	210,689	17,575	231,377	26,589	241,840	29,008
Scad	23,095	3,056	33,602	3,511	37,304	3,022
Yellowtails	52,177	33,267	58,598	45,283	55,825	50,275
Herrings, sardines, anchovies, etc	**439,417**	**53,726**	**527,187**	**59,734**	**529,827**	**59,258**
Japanese anchovy	295,897	25,822	405,906	34,636	407,665	30,550
Japanese pilchard	16,243	3,511	9,215	1,964	13,465	2,811
North Pacific herring	56,643	8,367	50,169	9,231	48,617	10,436
Round Herring	32,279	4,425	29,073	4,439	26,309	4,225
Tunas, bonitos, skipjacks	**620,824**	**204,705**	**597,092**	**215,045**	**657,146**	**260,228**
Albacore	116,487	37,197	127,341	38,817	106,255	47,003
Bigeye tuna	112,256	43,611	110,486	45,894	105,712	52,108
Bluefin tuna	61,026	33,997	55,904	33,350	45,179	32,419
Frigate mackerel	26,900	2,831	30,735	3,914	29,740	3,583
Skipjack	166,763	33,672	136,067	36,331	229,076	52,692
Yellowfin tuna	123,493	47,572	123,589	50,308	128,429	66,856
Mackerels, billfishes, cutlessfishes	**631,467**	**105,046**	**812,455**	**126,306**	**758,163**	**122,936**
Black and white marlin	32,228	14,575	27,660	14,511	24,778	13,606
Hairtail	44,791	14,517	47,682	15,092	45,414	16,156
Mackerels	495,664	47,847	668,574	59,647	624,423	57,097
Sailfish	5,423	1,717	14,116	4,469	10,786	3,833
Striped marlin	28,903	14,878	28,054	16,800	24,478	15,836

Quantity ; Metric tons
Value ; Thousand dollars

Species	1964		1965		1966	
	Quantity	Value	Quantity	Value	Quantity	Value
Swordfish	19,480	8,281	20,612	11,356	21,679	11,525
Sharks ,rays ,chimaeras	**68,927**	**7,778**	**66,951**	**9,497**	**71,091**	**10,100**
Sharks	56,779	6,906	56,628	8,661	60,359	9,242
Rays	12,148	872	10,323	836	10,732	858
Unsorted and unidentified fishes	**448,740**	**213,124**	**483,389**	**239,624**	**544,755**	**231,601**
Crustaceans	**154,144**	**82,206**	**132,762**	**74,164**	**143,202**	**85,985**
Freshwater shrimps	981	342	1,123	472	1,237	531
King crab	31,777	15,881	25,932	13,439	30,957	17,906
"Kuruma" prawn	3,186	10,944	3,112	11,167	2,268	11,678
Queen crab (Zuwaigani)	20,382	6,097	16,380	5,953	19,487	7,217
Shrimp, lobsters	74,556	39,139	63,374	32,344	66,227	36,514
Spiny lobster	1,855	4,306	1,583	4,414	1,566	4,539
Crabs	21,407	5,497	21,258	6,375	21,127	7,600
Molluscs	**960,182**	**131,023**	**1,138,280**	**159,763**	**1,147,687**	**193,779**
Freshwater molluscs	35,029	342	56,192	472	50,329	1,086
Abalone	4,609	6,739	4,340	6,503	5,580	9,917
Common scallop	6,889	2,042	5,742	2,089	7,370	2,450
Hard clam	16,332	2,544	13,742	2,203	9,974	2,492
"Mogai" clam	36,469	1,714	31,102	3,233	22,160	2,525
Octopuses	67,762	24,464	78,680	31,794	65,741	26,014
Oyster	240,564	13,278	210,603	15,997	221,139	17,992
Short necked clam	110,331	4,250	121,249	5,647	157,511	5,936
Squids and cuttlefishes	329,374	58,264	499,367	74,369	485,027	102,650
Sea-cucumbers, sea-urchins, acidians	**29,128**	**8,094**	**29,180**	**6,531**	**32,937**	**6,928**
Turtles, frogs, etc.	**19,493**	**4,692**	**19,218**	**3,914**	**21,878**	**4,625**
Pearls , shells , sponges , corals , etc.	**86**	**70,500**	**99**	**87,642**	**118**	**115,422**
Aquatic plants	**360,951**	**138,572**	**406,309**	**140,303**	**436,783**	**158,881**
Freshwater aquatic plants	380	---	382	---	382	---
Agar-agar	15,135	3,208	15,150	3,106	16,804	5,825
"Kombu" kelp	142,712	14,900	126,680	15,483	155,757	21,628
"Nori" seaweed	111,851	107,286	140,753	101,822	128,440	112,389
"Wakame" seaweed	48,406	9,178	74,420	16,531	79,743	12,722

Note; Species under for each group are shown about major species.

TABLE 7 CATCH BY FISHERIES,

A. Tuna and Skipjack Fisheries.

Tuna Long Line

Item	Albacore	Bigeye tuna	Bluefin tuna	Yellowfin tuna
Atlantic Ocean	28, 284	17, 642	2, 871	21, 774
Indian Ocean	12, 369	17, 422	13, 404	27, 181
Pacific Ocean	42, 190	69, 446	18, 546	69, 845
North 1)	14, 804	12, 759	1, 075	6, 599
Central	12, 229	43, 074	1, 391	46, 940
South	15, 157	13, 613	16, 080	16, 306
Total	**82,841**	**104,510**	**34,821**	**118,802**

1) Including catch of fishing vessels less than 50 gross tonnage operated on

Skipjack Pole and line

Item	Albacore	Bigeye tuna	Bluefin tuna	Frigate mackerel
Distant waters 1)	21, 605	1, 034	166	424
Coastal and Off shore waters. 1)	1, 225	74	271	10, 628
Total	**22,830**	**1,108**	**437**	**11,052**

1) In genral, Distant water fisheries indicate those using fishing vessels of 50 50 gross tonnage.

B. Trawl Fisheries

Item	Alaska pollack	Atka mackerel	Cod	Croakers	Flatfishes
Atlantic Ocean	-	-	-	758	252
Large trawler	-	-	-	758	252
Indian Ocean	-	-	-	-	-
Large trawler	-	-	-	-	-
Pacific Ocean	656, 259	57, 268	54, 536	96, 137	241, 009
North					
Large trawler	428, 567	2	35, 225	-	124, 452
Mothership type .	273, 891	-	20, 622	-	97, 368
Other	154, 676	2	14, 603	-	27, 084
Medium trawler...	226, 662	56, 838	17, 388	95, 004	91, 495
Small trawler	1, 030	428	1, 923	1, 133	25, 062
Central	-	-	-	-	-
South					
Large trawler	-	-	-	-	-
Total	**656,259**	**57,268**	**54,536**	**96,895**	**241,261**

BY SPECIES, 1966

Unit ; Metric tons

Black and white marlins	Sailfish	Striped marlin	Swordfish	Others	Total
3, 371	1, 844	3, 002	1, 958	5, 995	86, 741
5, 154	800	3, 732	1, 241	6, 091	87, 394
16, 095	7, 826	16, 059	16, 580	51, 591	308, 178
2, 129	1, 064	3, 464	10, 026	29, 597	81, 517
9, 792	4, 745	7, 979	4, 259	14, 972	145, 381
4, 174	2, 017	4, 616	2, 295	7, 022	81, 280
24,620	**10,471**	**22,790**	**19,781**	**63,676**	**482,312**

Central and South Pacific Ocean.

Unit ; Metric tons

Skipjack	Yellowfin tuna	Young tunas	Dolphinfish	Others	Total
140, 569	1, 269	2, 837	129	246	168, 279
72, 416	852	4, 313	327	268	90, 374
212,985	**2,121**	**7,150**	**456**	**514**	**258,653**

gross and over, while Coastal and Offshore water fisheries, those of less than

Unit ; Metric tons

Rockfishes	Crustaceans	Octopuses	Squids	Others	Total
-	466	22, 586	33, 085	121, 298	178, 445
-	466	22, 586	33, 085	121, 298	178, 445
-	-	-	0	11	11
-	-	-	0	11	11
114, 020	71, 820	10, 276	37, 778	556, 717	1, 895, 820
112, 941	3, 254	12	2	56, 760	761, 215
105, 537	3, 127	-	-	38, 657	539, 202
7, 404	127	12	2	18, 103	222, 013
977	24, 033	3, 870	30, 361	315, 870	862, 496
102	44, 533	6, 394	7, 411	180, 823	268, 839
-	-	-	-	-	-
-	-	-	5	3, 264	3, 269
114,020	**72,286**	**32,862**	**70,863**	**678,026**	**2,074,276**

TABLE 7 (Continued)

C. Salmon Fishries

Item	Atka Mackerel	Flatfishes	Japanese anchovy	Mackerel
Gill net				
Mothership type	-	-	-	-
Other	-	-	-	-
Salmon long line	-	-	-	-
Salmon set net	309	278	785	427
Total	**309**	**278**	**785**	**427**

D. Surrounding Nets Fisheries

Item	Jack Mackerel	Japanese anchovy	Japanese pilchard	Mackerel
Purse seines	440,256	267,382	10,570	399,997
Others	5,079	13,035	326	2,483
Total	**445,335**	**280,417**	**10,896**	**402,480**

E. Other major Fisheries.

Item	Frigate Mackerel	Mackerel	Saury	Common Squid
Saury stickheld dip net ...	114	1	234,623	1
Squid anglings	297	26	0	362,109
Mackerel anglings	54	154,578	0	61
Total	**465**	**154,605**	**234,623**	**362,171**

Unit ; Metric tons

Salmons	Trouts	Squids	Other	Total
35,654	3,276	-	-	38,930
26,661	23,428	-	386	50,475
3,943	17,104	-	10	21,057
11,360	356	1,620	741	15,876
77,618	**44,164**	**1,620**	**1,137**	**126,338**

Unit ; Metric tons

Round herring	Scads	Skipjack	Other	Total
19,023	30,216	10,844	56,587	1,234,875
1,604	148	105	18,469	41,249
20,627	**30,364**	**10,949**	**75,056**	**1,276,124**

Unit : Metric tons

Cuttlefishes	Others	Total
-	-	234,739
1,409	14,661	378,502
-	940	155,633
1,409	**15,601**	**768,874**

TABLE 7 (Continued)
F. Whalings

Item	Antarctic 1) Factory ship type	North Pacific Factory ship type	Coastal Large type	Coastal Small type	Total
Number of whales caught					
Blue whale	-	-	-	-	-
Fin whale	910	1,266	104	-	2,280
Humpback whale	-	-	-	-	-
Sei whale	11,310	2,208	311	-	13,829
Sperm whale	482	3,000	2,101	-	5,583
Mink whale	-	-	-	364	364
Bottlenose whale	-	-	-	171	171
Pilot whale	-	-	-	199	199
Others	-	-	-	357	357
Total	**12,702**	**6,474**	**2,516**	**1,091**	22,783
(Blue whale unit)	2,340	1,001	103	-	3,445
Products in metric tons					
Whale oil Sperm ...	2,585	22,071	8,633	-	33,289
Baleen ...	40,451	13,529	805	-	54,785
Others ...	-	-	-	471	471
Whale meat Frozen ...	120,160	42,191	-	-	162,351
Salted	4,344	3,869	-	-	8,213
Others ...	-	-	8,388	1,263	9,651
Liver oil	-	67	-	-	67
Other products	3,037	1,952	5,533	491	11,013
Value of Products ($1,000)	52,583	23,222	5,639	556	82,000

1) Antarctic whaling is counted in the year when the whaling is finished. Figures for other whalings are for calendar year.

TABLE 8 FISHING VESSELS. 1964~1966

Size	Number of fishing vessels			Gross tonnages		
	1964	1965	1966	1964	1965	1966
Marine						
Non-powered	166,951	163,988	153,025	142,216	136,652	121,440
Powered	203,718	217,156	226,045	2,024,431	2,054,128	2,128,741
Less than 5 G.T.	178,446	191,463	200,278	317,210	336,870	350,809
5 - 9. G.T.	8,127	8,181	8,204	60,265	61,023	61,604
10 - 49. G.T.	11,898	12,183	12,084	277,287	284,762	286,437
50 - 99. G.T.	3,510	3,510	3,447	284,321	286,258	282,462
100 -199. G.T.	672	742	891	99,269	110,368	134,265
200 -499. G.T.	805	824	867	254,204	258,624	273,184
500 -999. G.T.	112	97	106	79,813	71,165	78,613
1,000 G.T. and over	148	156	168	652,061	645,058	661,366
Fresh water						
Non-powered	17,407	17,887	16,143	8,031	8,926	8,023
Powered						
Less than 5 G.T.	3,892	4,212	4,342	5,108	5,461	5,491
5 G.T. and over	5	7	6	44	58	51

TABLE 9 MARINE FISHERY WORKERS 1]

Unit. 1,000 persons

Age	1964	1965	1966			
			Total	Distant water fisheries	Coastal and off-shore fisheries	Shallow sea cultures
Men						
15 - 19 years old ...	25.1	27.5	29.3	4.4	20.7	4.2
20 - 29 years old ...	95.5	89.1	82.0	15.0	52.5	14.4
30 - 39 years old ...	136.9	137.6	134.8	14.2	95.1	25.4
40 - 49 years old ...	91.7	95.3	97.6	6.2	71.9	19.4
50 - 59 years old ...	81.8	80.5	78.9	2.6	61.4	14.7
60 years old and over ..	73.7	72.2	72.8	0.6	60.1	11.9
Total	505.0	502.5	495.7	43.2	362.1	90.3
Women						
15 - 19 years old ...	2.8	2.9	2.8	-	1.2	1.6
20 - 29 years old ...	18.9	18.2	16.6	-	6.7	9.9
30 - 39 years old ...	33.9	34.6	34.9	-	16.7	18.2
40 - 49 years old ...	26.7	28.7	30.4	-	14.7	15.7
50 - 59 years old ...	16.7	16.7	17.9	-	9.6	8.3
60 years old and over ..	8.1	8.2	8.7	-	5.6	3.0
Total	107.3	109.5	111.6	-	54.7	56.9
Grand Total	612.4	612.0	607.4	43.2	416.8	147.2

1) Excluding the number of workers less than 29 days worked in a year.

TABLE 10 SUMMARY OF EXPORTS AND IMPORTS

Unit : Quantity Metric tons
Value Thousand dollars

	1964		1965		1966	
	Quantity	Value	Quantity	Value	Quantity	Value
Exports						
Frozen	324,860	87,012	288,012	88,837	269,751	118,171
Canned	11,929	128,420	10,801	136,487	11,559	138,232
Salted and dried	4,809	6,395	6,950	6,118	5,343	8,033
Oils and fats	107,796	23,433	97,305	20,916	55,677	12,936
Pearls	88,709	55,079	93,951	64,217	104,458	64,697
Others	17,932	10,675	30,774	13,973	36,862	19,982
Total	556,035	311,074	527,793	330,548	483,650	362,051
Imports						
Fresh and frozen	96,536	50,345	120,162	59,759	159,825	91,906
Salted and dried	11,097	7,329	12,696	9,979	14,270	8,786
Fish meals	102,277	13,663	112,644	16,381	95,618	18,491
Others	22,697	18,291	33,438	17,831	65,316	48,405
Total	232,607	89,628	278,940	103,950	335,029	167,588

TABLE 11 VALUE OF EXPORTS AND IMPORTS BY COUNTRIES

Unit Thausand dollars

Countries.	Exports			Imports		
	1964	1965	1966	1964	1965	1966
China (Mainland)	-	-	-	16,049	18,219	31,946
China (Taiwan)	61	508	1,176	958	813	2,008
Hong Kong	11,422	6,424	8,203	3,841	5,836	7,778
Malaysia	2,105	2,655	4,020	336	563	1,362
Philippines	11,658	9,299	13,204	-	-	-
Republic of Korea	-	-	-	15,913	15,994	27,915
Ryukyu Islands	4,744	6,041	7,137	1,230	8,219	3,529
Singapore	1,558	1,627	2,417	123	345	658
Thailand	-	-	-	3,049	3,809	7,508
Belgium	5,872	6,502	5,935	-	-	-
France	8,427	9,688	8,725	-	-	-
Italy	14,233	16,844	26,923	-	-	-
Norway	-	-	-	2,380	86	2,116
Netherlands	10,916	11,572	11,127	-	-	-
Republic of Germany ..	18,788	27,138	22,804	-	-	-
Spain	801	3,326	4,156	2,788	5,761	7,117
Swizerland	10,711	12,522	13,637	-	-	-
United Kingdom	45,966	62,944	41,221	244	724	45
U. S. S. R.	-	-	-	2,719	4,288	6,278
Canada	5,141	6,130	6,977	794	1,141	1,985
U. S. A.	90,219	89,277	117,637	5,933	7,147	17,396
Chile	-	-	-	499	2,108	2,287
Mexico	-	-	-	9,622	10,372	12,037
Peru	-	-	-	11,124	8,219	11,848
Puerto Rico	14,722	13,583	19,997	-	-	-
Ghana	2,686	1,536	2,449	-	-	-
Australia	7,433	9,424	8,675	3,127	3,311	4,948
Others	46,764	33,508	35,631	8,898	6,992	18,827
Total	314,227	330,548	362,051	89,627	103,947	167,588

TABLE 12 VALUE OF EXPORTS AND

By countries and

EXPORTS

	Frozen			Salted and dried	Canned		
	Marlins	Tunas	Others		Mackerels	Salmons	Saury
Ceylon	-	-	-	-	790	-	319
China (Taiwan) ..	-	-	22	347	-	-	-
Hong Kong	-	6	87	3,260	47	0	63
India	-	-	-	0	-	2	-
Malaysia	16	2,592	6	10	985	-	189
Philippines	-	-	8	2	10,469	4	115
Ryukyu Islands ..	7	-	1,961	2,096	146	11	95
Singapore	-	-	62	715	648	11	106
Lebanon	-	-	124	-	36	1	0
Belgium	-	-	318	0	281	1,307	546
France	-	237	60	2	4	1,150	
Greece	-		739	-	513	32	393
Italy	125	20,483	2,974	-	5	251	106
Netherlands	-	-	1,111	-	97	1,298	291
Republic of Germany	4	57	1,720	4	297	52	604
Spain	-	2,067	28	-	-	0	
Sweden	-	19	58	-	-	53	0
Swizerland	-	-	-	1	-	42	21
United Kingdom ...	-	0	4,774	4	14	26,973	0
Yugoslavia	-	-	234	-	-	-	-
Canada	3	1,025	263	61	0	4	2
U. S. A.	6,315	27,945	9,009	1,291	4,433	157	123
Puerto Rico	-	18,772	25	-	-	-	-
Ghana	-	10	1,049	1	1,358	-	11
Liberia	-	-	1,224	-	38	-	-
Australia	-	27	640	5	140	6,137	2
Others	241	8,432	3,291	234	3,297	755	2,061
Total	**6,711**	**81,672**	**29,787**	**8,033**	**23,598**	**38,240**	**5,047**

IMPORTS OF FISHERY PRODUCTS, 1966

by commodities

Unit: Thousand dollars

Tuna	Crabs	Others	Oil and fat		Pearls	Others	Total
			Whale Oil	Others			
-	-	1	-	-	0	387	1,497
-	-	-	-	-	58	749	1,176
7	-	276	-	1	4,307	149	8,203
8	-	2	-	-	1,054	50	1,116
0	6	89	-	5	13	109	4,020
103	-	1,628	5	11	-	859	13,204
560	12	871	-	-	104	1,274	7,137
7	15	188	-	7	370	288	2,417
591	0	6	-	-	747	2	1,507
1,557	500	11	617	-	785	13	5,935
344	3,486	117	660	46	2,436	183	8,725
84	19	29	-	-	8	8	1,825
147	17	507		1	1,280	1,027	26,923
1,453	244	18	6,024	14	278	299	11,127
7,350	79	103	2,132	3	9,906	493	22,804
360	-	11	-	0	1,688	2	4,156
104	169	29	-	12	621	110	1,175
1,435	3	3	-	-	12,097	35	13,637
1,680	2,956	1,157	-	5	1,094	2,564	41,221
-	-	-	-	-	-	33	267
2,753	64	1,616	-	45	1,039	102	6,977
25,130	2,796	5,516	2,799	309	23,370	8,444	117,637
-	-	-	-	-	8	1,192	19,997
-	-	18	-	-	0	2	2,449
4	-	1	-	-	-	1	1,268
14	219	457	-	-	804	230	8,675
3,867	181	369	3	237	2,630	1,378	26,976
47,558	**10,766**	**13,023**	**12,240**	**696**	**64,697**	**19,983**	**362,051**

TABLE 12 (Continued)

IMPORTS

	Living animals	Fresh and frozen				Salted and dried
		King Mackerel	Shrimps	Whale Meats	Others	
China (Mainland) ...	1	2,139	22,651	6	3,399	2,284
China (Taiwan)	140	-	771	-	871	1
Hong Kong	449	-	6,863	-	102	3
Indian	-	-	1,731	-	-	8
Indonesia	1	-	-	-	-	0
Korea (North)	-	-	-	-	-	497
Malaysia	-	-	1,305	-	-	-
Pakistan	-		448	-	-	·2
Repablic of Korea ..	903	2,644	1,031	92	4,997	2,554
Ryukyu Islands	198	-	1	-	2,722	80
Singapore	362	-	199	-	-	0
South Vietnum	-	-	962	-	-	-
Thailand	205	4	7,261	-	1	-
Saudi Arabia	-	-	780	-	-	-
Greece	-	-	144	-	32	-
Island	0	-	-	-	-	-
Norway	-	-	-	1,808	1	106
Portugal	-	-	-	-	-	-
Spain	-	0	-	-	7,015	-
United Kingdom	0	-	-	-	-	1
U. S. S. R.	-	-	1,699	738	1,095	626
Canada	-	-		472	4	1,496
U. S. A.	292	-	193	-	925	6,618
Argentina	-	-	-	-	45	-
Chile	-	-	-	975	-	-
Mexico	-	-	11,451	-	8	2
Peru	1	-	-	-	-	-
Australia	0	-	1,712	-	179	-
Other	35	6	883	605	935	9
Total	2,587	4,793	60,085	4,696	22,331	14,287

Unit ; Thousand dollars

Raw ager-ager	Fish meals	Pearls	Oil and fat	Prepared	Dried seaweeds	Shells	Others	Total
0	371	-	-	968	-	119	8	31,946
49	-	-	34	53	-	-	89	2,008
4	-	243	7	3	-	80	24	7,778
60	-	15	-	7	-	5	3	1,829
593	-	8	-	-	-	322	11	935
-	6	-	5	15	-	-	35	558
-	-	43	-	-	-	2	12	1,362
-	-	-	-	-	-	-	1	451
-	-	-	4	3,482	9,650		2,558	27,915
45	-	3	-	136	-	23	321	3,529
33	-	-	-	-	-	23	41	658
-	-	-	-	-	-	-	-	962
29	-	-	-	1	-	5	2	7,508
-	-	-	-	-	-	-	-	780
-	-	-	-	-	-	-	645	821
-	-	-	831	-	-	-	-	831
-	-	-	28	64	-	-	109	2,116
131	128	-	-	8	-	-	123	390
-	-	-	72	29	-	-	1	7,117
-	-	29	-	9	-	0	6	45
						-	-	-
18	1,682	-	119	299	-	-	2	6,278
-	-	-	-	9	-	3	1	1,985
33	42	10	1	478	-	8,758	46	17,396
1,521	5	-	-	-	-	-	11	1,582
1,280	10	-	-	-	-	-	22	2,287
412	-	-	-	151	-	13	-	12,037
-	11,847	-	-	-	-	-	-	11,848
-	15	2,832	-	77	-	113	20	4,948
1,133	4,385	284	10	432	-	341	630	9,688
5,341	**18,491**	**3,467**	**1,111**	**6,221**	**9,650**	**9,807**	**4,721**	**167,588**

TABLE 13 FOOD BALANCE SHEET ON FISHERY PRODUCTS

Unit: Thousand metric tons

	1964	1965	1966
(Fish and Shellfish) 1)			
Domestic production			
For domestic consumption			
Fresh and frozen	1,560	1,870	1,756
Dried, salted and smoked	1,233	1,316	1,264
Kneaded	1,248	1,364	1,604
Fish sausage	251	269	252
Canned	87	110	118
Feeds	893	893	906
Total	5,273	5,822	5,899
For exports			
Fresh and frozen	292	260	266
Canned	369	339	401
Others for food use	26	19	25
Feeds	29	62	75
Total	716	680	767
Total	**5,989**	**6,502**	**6,666**
Imports			
For food use			
Total	85	119	170
For feeds			
Total	487	536	455
Total	**572**	**655**	**625**
Domestic supply			
For food use			
Domestic production	4,380	4,929	4,993
Imports	85	119	170
Total	4,465	5,048	5,163
For feeds			
Domestic production	893	893	906
Imports	487	536	455
Total	1,380	1,429	1,361
Total	**5,845**	**6,477**	**6,524**
(Whale)			
Domestic production			
For domestic consumption			
Total	157	184	176
For exports			
Total	41	34	9
Total	**198**	**218**	**185**
Imports			
Total	24	19	21
Domestic supply			
For food use			
Total	181	203	176
For feeds			
Total	-	-	21
Total	**181**	**203**	**197**

Unit; Thousand metric tons

	1964	1965	1966
(Seaweed) 2)			
Domestic production			
For domestic consumption			
Total	71	80	92
For exports			
Total	1	1	2
Total	**72**	**81**	**94**
Import			
Total	**10**	**12**	**21**
Domestic supply			
For food use			
Total	62	70	81
For feeds			
Total	19	22	32
Total	**81**	**92**	**113**
Por Capita Food Supply (Unit kgs.)			
Fish and shellfishes	45.9	51.4	52.1
Whales	1.9	2.1	1.8
Seaweeds	0.6	0.7	0.8
Total	**48.4**	**54.2**	**54.7**

1) Converted to live weight base.
2) Converted to dried weight base.

TABLE 14 PROCESSED FISHERY PRODUCTS

Unit; Metric tons
Canned; Thousand cases

Item	1965			1966		
	Processed on board	Processed on land	Total	Processed on board	Processed on land	Total
Boiled and dried	-	**100,777**	**100,777**	-	**82,731**	**82,731**
Sand lance	-	9,342	9,342	-	4,544	4,544
Sardines	-	69,891	69,891	-	56,265	56,265
Others	-	21,544	21,544	-	21,922	21,922
Cured	-	**79,916**	**79,916**	-	**83,435**	**83,435**
Mackerel	-	11,707	11,707	-	11,044	11,044
Skipjack	-	20,339	20,339	-	22,274	22,274
others	-	47,870	47,870		50,117	50,117
Dried	-	**40,922**	**40,922**	-	**38,505**	**38,505**
Herring	-	3,926	3,926	-	5,279	5,279
Squid and cuttlefishes	-	27,375	27,375	-	21,327	21,327
Others	-	9,621	9,621	-	11,899	11,899
Frozen	**658,698**	**1,140,638**	**1,799,336**	**608,539**	**1,217,118**	**1,825,657**
Atka mackerel	-	27,770	27,770	-	24,204	24,204
Cod	11,324	9,011	20,335	8,090	12,403	20,493
Halibut and flounders	24,734	14,226	38,960	36,768	24,060	60,828
Herring	24,092	3,439	27,531	21,454	3,762	25,216
Mackerel	43	194,202	194,245	54	173,318	173,372
Marlins	13,570	53,067	66,637	10,161	48,806	58,967
Sardines	-	58,056	58,056	-	87,522	87,522
Saury	-	163,502	163,502	-	168,449	168,449
Skipjack	7,394	11,441	18,835	4,690	29,287	33,977
Squid and cuttlefishes	38,636	173,998	212,634	33,089	164,389	197,478
Tunas	125,889	179,078	304,967	92,886	197,860	290,746
Whales	193,548	6,309	199,857	162,351	5,010	167,361
Others	219,468	246,539	466,007	238,996	278,048	517,044
Kneaded	-	**797,178**	**797,178**	-	**895,136**	**895,136**
"Chikuwa"	-	121,774	121,774	-	157,636	157,636
Fish sausage	-	188,094	188,094	-	176,026	176,026
"Kamaboko"	-	479,120	479,120	-	553,830	553,830
Others	-	8,188	8,188	-	7,644	7,644
Manure and feed	**58,813**	**373,965**	**432,778**	**63,760**	**387,184**	**450,944**
Fish cake	-	112,455	112,455	-	130,296	130,296
Fish meal	43,918	181,564	225,482	48,898	177,015	225,913
Others	14,895	79,946	94,841	14,862	79,873	94,735
Oil and fat	**134,684**	**40,737**	**175,421**	**82,308**	**42,502**	**124,810**
Fish oil;						
Saury	-	2,132	2,132	-	2,009	2,009
Whales	129,523	8,882	138,405	78,636	9,824	88,460
Others	5,041	16,180	21,221	3,605	16,990	20,595
Fish visceral oil :						
Cod	-	9,222	9,222	-	10,315	10,315
Sharks	-	1,071	1,071	-	948	948
Squid	-	1,850	1,850	-	1,477	1,477
Others	120	1,396	1,516	67	939	1,006

Unit: Metric tons
Conned; Thousand cases

Item	1965			1966		
	Processed on board	Processed on land	Total	Processed on board	Processed on land	Total
Salted	**12,139**	**141,808**	**153,947**	**10,320**	**156,960**	**167,280**
Atka mackerel	-	6,927	6,927	-	7,523	7,523
Cod	135	16,302	16,437	64	11,487	11,551
Cod roe	-	11,611	11,611	-	14,336	14,336
Mackerel	-	41,989	41,989	-	53,242	53,242
Salmons	1,748	51,898	53,646	1,569	51,948	53,517
Whales	9,880	2,345	12,225	8,212	1,858	10,070
Others	376	10,736	11,112	475	16,566	17,041
Salted and dried	-	**122,079**	**122,079**	-	**121,079**	**121,079**
Horse mackerel	-	29,600	29,600	-	28,994	28,994
Mackerel	-	17,581	17,581	-	14,184	14,184
Sardines	-	24,459	24,459	-	29,573	29,573
Saury	-	18,430	18,430	-	15,907	15,907
Others	-	32,009	32,009	-	32,421	32,421
Smoked	-	**8,532**	**8,532**	-	**6,422**	**6,422**
Herring	-	319	319	-	95	95
Salmons	-	559	559	-	504	504
Squid and cuttlefishes	-	2,030	2,030	-	1,271	1,271
Others	-	5,624	5,624	-	4,552	4,552
Canned Standard cases	-	-	**12,173**	-	-	**12,333**
Canned actual cases	**1,569**	**25,141**	**26,252**	**1,358**	**25,975**	**27,333**
Clams	-	2,029	2,029	-	2,940	2,940
Crabs	458	371	829	463	551	1,014
Horse mackerel	-	995	995	-	1,087	1,087
Mackerel	-	5,401	5,401	-	6,378	6,378
Prawn and shrimps	151	171	322	73	101	174
Salmons	960	2,727	3,687	823	2,490	3,313
Sardines	-	394	394	-	562	562
Saury	-	2,300	2,300	-	1,397	1,397
Squid and cuttlefish	-	882	882	-	404	404
Tuna (& Skipjack)	-	5,631	5,631	-	6,887	6,887
Whale	-	2,461	2,461	-	1,994	1,994
Others	-	1,321	1,321	-	1,184	1,184

TABLE 15 LANDINGS AT IMPORTANT FISHING PORTS IN 1966

Unit: Metric tons

Kind of Fish	Wakkanai	Kushiro	Hachinohe	Kesenuma	Shiogama	Choshi	Tokyo
Halibut and flounders ...	19,188	9,444	9,122	279	3,798	1,878	-
Alaska pollack	84,602	84,937	57,727	67	25,337	-	-
Cod	6,391	16,523	6,797	609	6,259	-	-
Atka mackerel	32,791	311	0	0	4	-	-
Croakers	-	-	-	-	-	-	-
Sea breams	-	-	-	0	-	316	4
Jack mackerel	-	-	0	3	31	416	-
Saury	3	15,901	13,037	30,043	8,966	16,811	-
Yellowtails	-	-	16	56	16	1,136	0
Japanese Anchovy	-	619	2,128	44	3	44,424	-
Albacore	-	-	0	2,914	1,295	410	2,600
Bigeye tuna	-	-	2	4,358	2,367	153	22,246
Bluefin tuna	-	23	71	116	7,712	58	3,505
Skipjack	-	-	238	23,931	7,010	8,210	336
Yellowfin tuna	-	-	0	1,163	2,578	168	20,793
Mackerel	-	41,117	89,253	6,959	2,151	53,398	-
Swordfish and marlins ..	-	136	23	7,890	2,039	1,895	8,596
Common squid	3,461	17,487	59,326	1,220	67	267	-
Octopuses	313	637	805	121	327	250	6,435
Others	21,394	35,596	16,624	22,039	12,036	9,496	206,469
Total	**168,143**	**222,731**	**255,169**	**101,812**	**81,996**	**139,286**	**270,984**

(Continued)

Unit: Metric tons.

Kind of Fish	Misaki	Simizu	Yaizu	Shimonoseki	Fukuoka	Karatsu	Nagasaki
Halibut anf flounders ...	1	-	1	5,929	9,388	75	5,048
Alaska pollack	-	-	-	-	-	-	-
Cod	-	-	-	22	-	-	-
Atka mackerel	-	-	-	-	-	-	-
Croakers	-	-	-	600	1,084	-	1,598
Sea breams	3	-	2	1,991	2,283	272	6,111
Jack macherel	81	175	62	97,894	80,133	105,757	67,332
Saury	0	10	1	46	18	132	10
Yellow tails	26	18	6	515	201	822	2,142
Japanese Anchovy	109	-	-	560	106	329	2,264
Albacore	603	12,583	15,310	-	-	-	0
Bigeye tuna	18,247	2,544	10,417	-	-	-	-
Bluefin tuna	1,821	1,182	21,249	-	0	-	37
Skipjack	1,382	4,590	53,847	-	-	107	-
Yellowfin tuna	8,302	3,472	11,515	-	-	-	11
Mackerel	909	1,050	48,524	18,730	19,905	17,103	16,705
Swordfish and marlins ..	7,576	1,415	6,983	-	0	1	373
Common squid	123	0	-	703	412	1,972	560
Octopuses	0	-	0	1,997	1,208	54	317
Others	35,778	63,763	25,264	106,148	123,862	9,640	143,756
Total	**74,961**	**90,802**	**193,181**	**235,135**	**238,600**	**136,264**	**246,264**

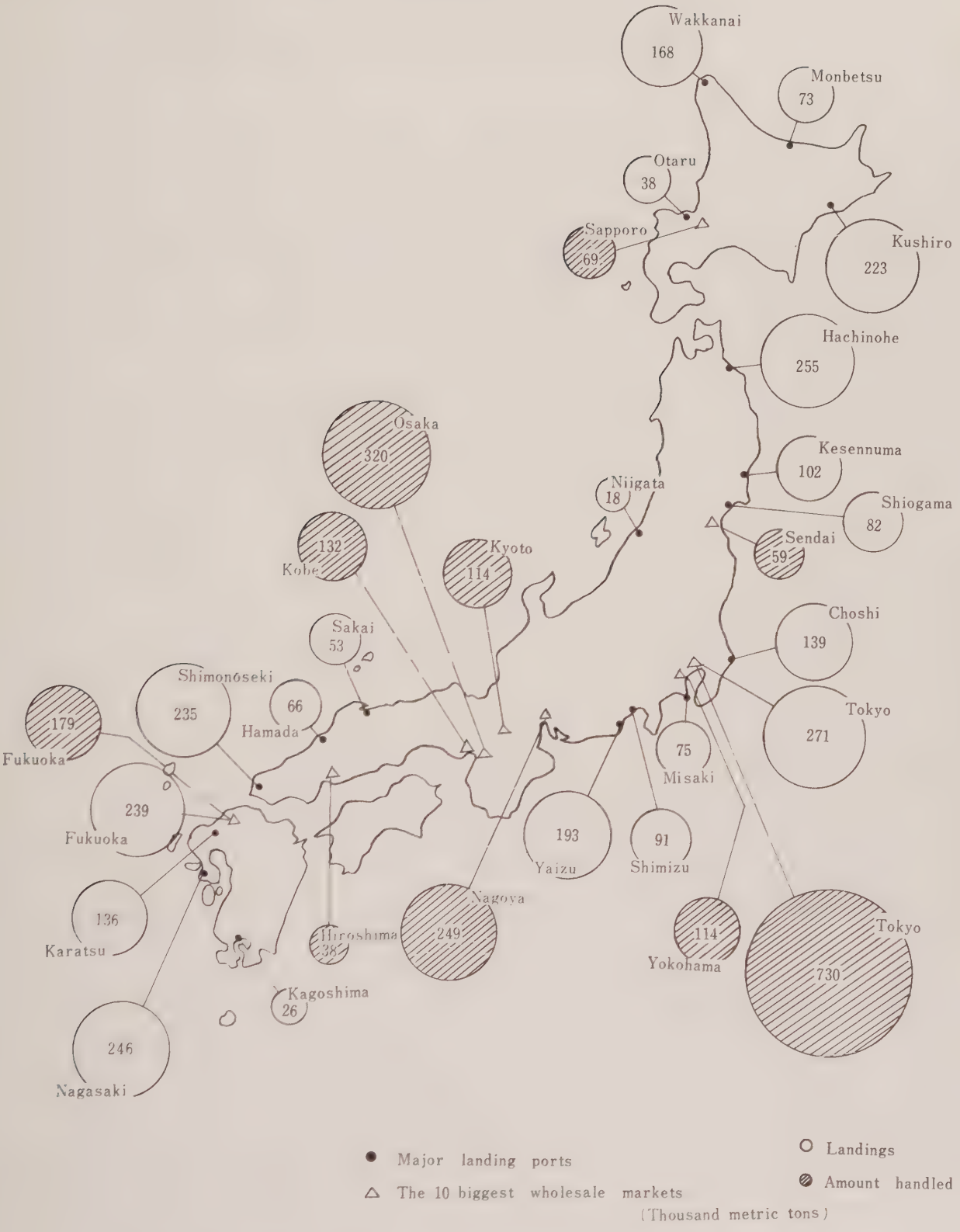


Fig. 6. MAJOR LANDINGPORTS AND THE10 BIGGEST WHOLESALE MARKETS

TABLE 16 COSTS AND EARNINGS OF FISHERY (BY STRATA OF FISHING VESSEL)

Item	Non-powered vessel	Powered					
		Less than 3 tons	3 - 5 tons	5 - 10 tons	10 - 30 tons	30 - 50 tons	50 - 100 tons
Total business earnings	2,677	3,623	6,145	10,773	25,697	62,875	118,789
Total business expenditures	491	1,255	3,329	6,993	22,022	55,078	110,567
Total business income	2,186	2,368	2,816	3,781	3,675	7,797	8,222
Fisheries gross earnings	1,038	2,572	5,167	9,624	23,103	60,147	113,167
Fisheries expenditures :							
Wages	58	236	1,227	3,025	9,519	24,231	43,461
Boat maintenance	12	100	206	451	1,267	3,817	7,808
Fishing equipments	11	15	39	32	78	103	228
Fishing gears	22	142	254	516	1,436	2,419	8,019
Fuel oils	9	104	270	558	1,406	3,742	7,622
Baits	4	52	126	361	836	2,828	2,397
Ice	0	11	41	106	311	1,108	1,642
Boxes	8	10	33	53	303	314	1,897
Miscellaneous materials ...	16	25	61	83	211	672	1,178
Charges for selling	36	105	226	439	1,103	2,703	4,650
Other charges and fees	16	26	48	76	311	492	1,334
Culture expenditures	-	-	-	-	-	-	-
Depreciation	93	233	524	857	2,403	7,283	14,392
Others	10	25	69	106	642	2,697	7,939
Total	296	1,083	3,124	6,663	19,825	52,408	102,572
Fisheries net income	742	1,489	2,043	2,961	3,278	7,739	10,594
Capital invested in fishing							
Fixed capital :	458	1,357	2,758	4,799	11,067	31,241	72,189
Land and building	292	336	438	568	1,150	2,050	5,167
Boat : hull	96	347	814	1,712	3,647	11,614	32,006
engine	29	491	1,017	1,662	3,728	9,447	17,144
fishing equipment	-	68	212	495	1,525	5,219	10,283
Nets and ropes	29	101	250	309	869	2,386	5,769
Others	11	14	27	53	150	494	1,819
Floating capital	337	1,011	1,992	3,630	9,358	22,922	44,278
Total	795	2,368	4,750	8,428	20,425	54,136	116,469

1) Average of sample fisheries management units.

MANAGEMENTS IN 1966 1〕

Unit ; dollars

Vessel			Large set net	Small set net	"Nori" culture	"Oyster" culture	"Pearl" culture	Mother pearl-shell culture
100 - 200 tons	200 - 500 tons	500 tons and over						
210,189	**326,928**	**856,869**	**99,783**	**4,668**	**5,899**	**5,577**	**20,391**	**5,050**
191,056	**297,528**	**771,719**	**83,286**	**2,641**	**1,957**	**2,755**	**17,687**	**2,333**
19,133	**29,400**	**85,150**	**16,497**	**2,027**	**3,941**	**2,822**	**2,703**	**2,717**
201,539	**305,533**	**805,992**	**92,006**	**3,360**	**4,028**	**4,099**	**19,339**	**3,673**
77,158	107,781	252,644	32,547	433	240	543	3,907	249
14,353	24,625	70,222	1,567	64	35	38	105	31
456	381	533	453	59	286	483	1,215	21
10,508	14,328	29,906	10,708	359	7	12	-	-
13,011	23,525	64,567	594	58	68	50	182	25
6,889	11,419	11,981	-	7	-	-	-	-
2,264	3,511	17,053	244	3	-	-	-	-
2,650	4,428	37,897	364	12	-	-	-	-
1,631	2,558	9,464	1,633	49	188	206	498	344
7,553	11,436	33,747	4,061	141	98	159	176	143
2,261	6,358	39,328	3,114	67	71	228	994	116
-	-	-	-	-	133	187	7,644	201
24,117	35,642	83,597	15,369	1,031	313	579	1,251	665
14,192	17,742	53,369	6,717	43	27	25	416	10
177,042	**263,733**	**704,308**	**77,372**	**2,325**	**1,464**	**2,509**	**16,388**	**1,806**
24,497	**41,800**	**101,683**	**14,631**	**1,035**	**2,564**	**1,590**	**2,951**	**1,868**
135,858	**232,644**	**616,856**	**39,555**	**2,874**	**2,069**	2,207	5,209	2,026
7,036	7,814	20,758	9,347	755	1,073	796	1,865	524
68,847	130,533	346,294	5,583	331	251	343	939	278
28,267	42,217	125,347	3,144	382	366	372	996	369
18,358	35,978	82,261	278	14	-	9	75	-
10,214	13,542	32,619	19,858	1,252	36	77	16	568
3,133	2,558	9,575	1,344	141	344	611	1,318	288
76,556	113,289	310,356	31,111	1,135	1,130	1,443	8,281	1,024
212,413	**345,933**	**927,211**	**70,667**	**4,009**	**3,199**	**3,650**	**13,490**	**3,049**

APPENDIX 1 CLASSIFICATION OF TYPE OF MARINEFISHERIES.

Classification	Classification shown in this bulletin	Classification published by Ministry of Agriculture and Forestry
Gill nets	King crab gill net	Factory ship type king crab gill net
	Salmon drift gill net	Factory ship type salmon drift gill net (Distant waters)
		Salmon drift gill net of one boat operation, (Coastal)
	Other gill nets	Sardine drift gill net, Herring gill net, and other.
Surrounding nets	Purse seines	Purse seine of one and two boats operation.
	Other surrounding nets	Semi-surrounding net.
		Other surrounding nets
Lift nets	Saury stick-held dip net	Saury stick-held dip net
	Other lift nets	Atka mackerel square lift net
		Other lift nets
Trawls	Large trawls	Factory ship type trawl (Berring sea)
		Factory ship type trawl (Okhotsk sea)
		Otter trawl on Distant waters
		Otter trawl in Bering sea
		Otter trawl, west of 130°E
		Large trawl, west of 130°E
	Modium trawls	Medium trawl of one and two boats operation.
	Small trawls	Small trawls
Set nets	Set nets	Large set nets
		Small set nets
Long lines	Tuna long line	Mother ship type tuna long line
		Tuna long line operated on Atlantic Ocean.
		Tuna long line based at foreign ports.
		Tuna long line based at domestic ports.
	Other long lines	Alaska pollack long line, Salmon long line, and other
Anglings	Skipjack pole and line	Skipjack pole and line (Distant waters and Coastal)
	Squid angling	Squid angling
	Other anglings	Mackerel pole and line, other kind of mackerel anglings, and other anglings.
Collectings	Shellfish collectings	Shellfish collectings.
	Seaweed collectings	Seaweed collectings
Other fisheries	Others	Beach seine, "Patchi" and other haul seine, Dart, other fisheries.

APPENDIX 2. CLASSIFICATION OF FISHES

Classification shown in this bulletin (FAO)	Classification published by Ministry of Agriculture and Forestry.		
Freshwater fishes	Common carp Sweet fish	Crucian carp White bait	Pond-smelt Other freshwater fishes.
River eel	Eel		
Salmons, trouts, smelts, etc.	Chum salmon Brook trout	Cherry salmon Bull trout	Rainbow trout Other salmonidae spp.
Flounders, halibuts, soles, etc.	Bastard halibut "Sohachi" flounder Flathead flounder Other flatfishes	Dab Frog flounder Slime flounder	Arrow-toothed halibut Roundnose flounder Fluke
Cods, hakes, haddocks, etc.	Pacific cod	Alaska pollack	
Redfishes, basses, congers, etc.	Atka mackerel White croaker Croaker Sand lance Crimson sea bream Sharp toothed eel	Rock fishes Yellow croaker Gurnards Common sea bass Yellow sea bream	Sand fish Black croaker Lizard fish Red sea bream Black sea bream
Jacks, mullets, etc.	Dolphin fish Saury Mullets	Flying fish Scad Butter fish	Jack mackerel Yellowtail
Herrings, sardines, anchovies, etc.	Pacific herring Anchovy	Sardine Clupeicae larva	Round herring
Tunas, bonitos, skipjacks	Albacroe Yellow fin tuna Young tunas	Bigeye tuna Frigate mackerel	Blue fin tuna Skipjack
Mackerels, billfishes, Cutlessfishes, etc.	Black and white marlins Sailfish Spanish mackerel	Hairtail Striped marlin	Mackerels Broadbill swordfish
Sharks, rays, chimaeras.	Great blue shark Other sharks	Salmon shark Skates and rays	Dogfish
Unsorted and unidentified fishes.	Deep sea smelt	Other fishes	
Crustaceans.	Fresh water shrimps Other marine shrimps Blue crabs	Spiny lobster King crab Other crab	"Kuruma" prawn Red crab
Molluscs	Fresh water clams Top shell Hen clam Oysters Cuttlefishes	Other fresh water molluscs Hard clams Common scallop Other shellfishes Octopuses	Abalones Short necked clams "Mogai" clam Common squid
Sea-cucumbers, sea-urchins, acidians	Sea-cucumbers	Sea-urchins	
Turtles, frogs, etc.	Other marine animals		
Pearls, shells, sponges, etc.	Pearls (freshwater and marine cultured)		
Aquatic plants	Freshwater aquatic plants "Wakame" seaweed "Nori" seaweed	"Kombu" kelp Agar-agar Other seaweeds	

EXPLANATORY NOTES

1. Sources of statistics

Table 1-1, 1-2.	Yearbook of Fishery Statistics 1966. Vol. 22. FAO.
Table 2-1 - 7.(E).	Statistics and Survey Division, Ministry of Agriculture and Forestry.
Table 7 (F) - 8	Fishery Agency, Ministry of Agriculture and Forestry.
Table 9	Statistics and Survey Division, Ministry of Agriculture and Forestry.
Table 10 - 12	Customs Division, Ministry of Finance.
Table 13	Fishery Agency, Ministry of Agriculture and Forestry.
Table 14 - 16	Statistics and Survey Division, Ministry of Agriculture and Forestry, and Japan Canned Foods Association.

2. Period of inquisition

As a principle the statistics in this report are inquired by the Calendar year but the fiqures of the whaling in the Antarctic Ocean are given for the "Whaling year" (from Nov. 1965 to Mar. 1966)

3. Units.

(1) The unit of weight is generally shown in 1 metric ton, and any fraction less than 1 metric ton is discarded.

(2) The unit of value in this report is generally shown in 1 million dollars or 1 thousand dollars, excluding table 16, and any fraction less than 1 million dollars or 1 thousand dollars is discarded. The figures in this report are converted from Annual Report of Catch Statistics on Fishery and Aquiculture in 1966, as one dollar equal to 360 yen.

Consequently, in both weight and value, there may be some cases that the grand total does not always equal to the sum of respective figures.

4. Symbols

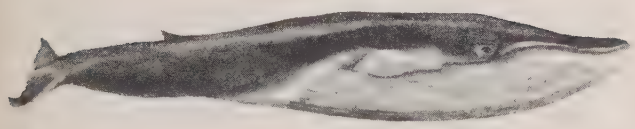
(O)	Means "Less than the unit amount"
(---)	Means "Unknown or not available"
(–)	Means "No record"

Illustration of Important Fishes in Japan

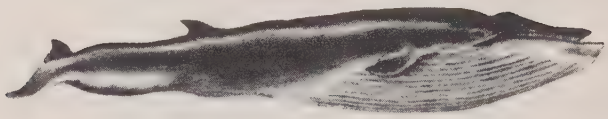
I Marine Fisheries

A Marine Mammals

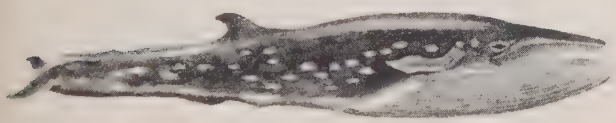
Blue whale
Shironagasukujira
Balaenoptera masculas



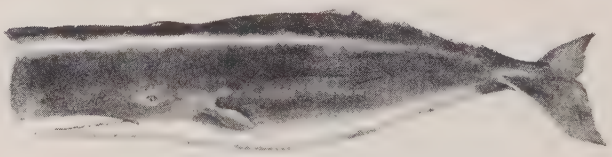
Fin whale
Nagasukujira
Balaenoptera physalus



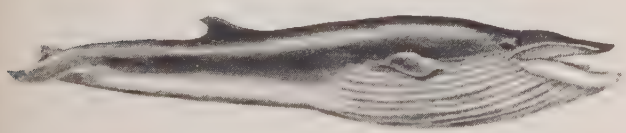
Sei whale
Iwashikujira
Balaenoptera borealis



Sperm whale
Makkokujira
Physeter catodon



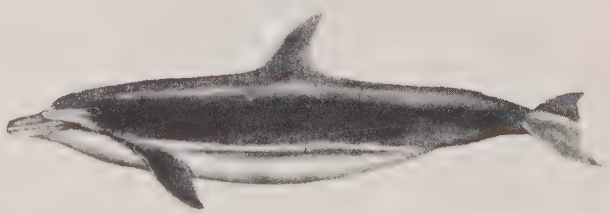
Mink whale
Koiwashikujira
Balaenoptera acuto-rostrata



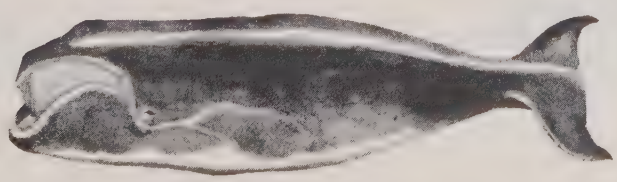
Pilot whale
Gondokujira
Globicephalus melas

Killer Whale
Shachikujira
Grampus orca

(Dolphin)
Mairuka
Delphinus delphis delphis



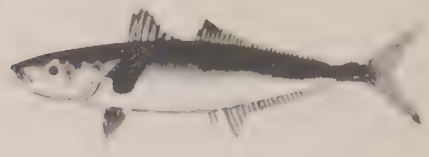
Right whale
Semikujira
Balaena glacialis sieboldii



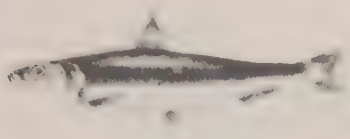
B Fishes

Herring
Nishin
Clupea pallasi

Scad
Muroaji
Decapterus Muroadsi



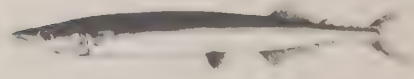
Sardine
Maiwashi
Sardinops melanosticta



Mackerel
Masaba
Scomber japonicus

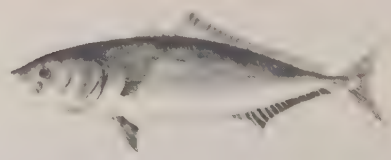
Round herring
Urumeiwashi
Etrumeus micropus

Saury (Saury-pike)
Sanma
Cololabis saira



Anchovy
Katakuchiiwashi
Engraulis japonica

Yellowtail
Buri
Seriola quinqueradiata

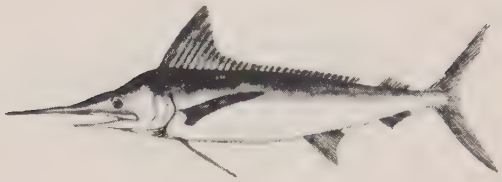


Horse mackerel
Maaji
Trachurus japonicus

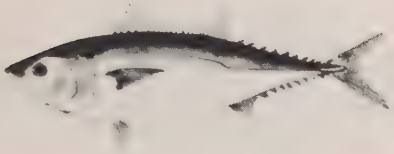
Skipjack
Katsuo
Katsuwonus pelamis

Frigate mackerel
Hirasoda
Auxis thazard

Striped marlin
Makajiki
Makaira mitsukurii



Bluefin tuna
Maguro
Thunnus thynnus



Broadbill swordfish
Mekajiki
Xiphias gladius

Albacore
Binnaga
Thunnus alalunga

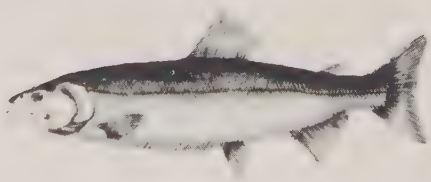
Black marlin
Kurokajiki
Makaira mazara

Bigeye tuna
Mebachi
Parathunnus obesus

Sailfish
Bashokajiki
Histiophorus orientalis

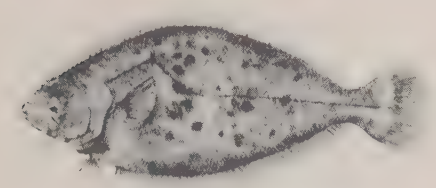
Yellowfin tuna
Kiwada
Neothunnus albacora

Chum salmon
Sake (Shirozake)
Oncorhynchus keta



Cherry salmon
Sakuramasu
Oncorhynchus masou var. masou

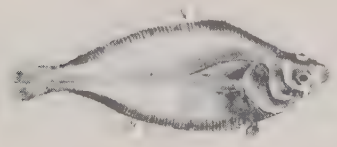
Bastard halibut
Hirame
Paralichthys olivaceus



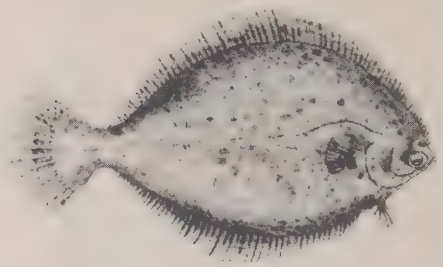
Dab (Flat fish)
Magarei
Limanda herzensteini

Arrow toothed halibut
Aburagarei
Atheresthes evermanni

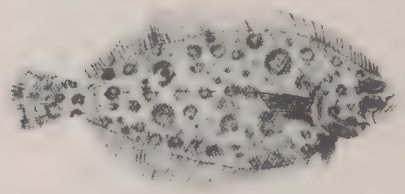
(Flat fish)
Sohachigarei
Cleisthenes pinetorum herzensteini



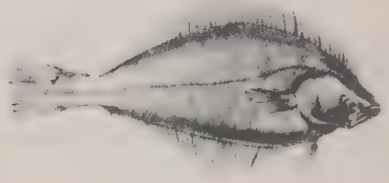
Frog flounder
Meitagarei
Pleuronichthys cornutus



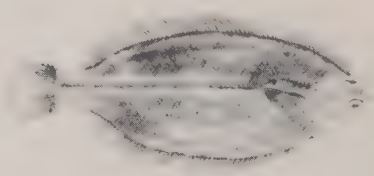
Roundnose flounder
Mushigarei
Eopsetta grigorjewi



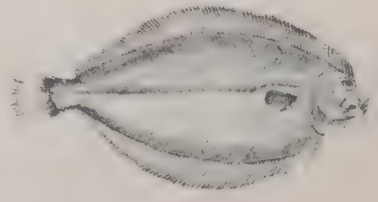
Flathead flounder
Akagarei
Hippoglossoides dubius



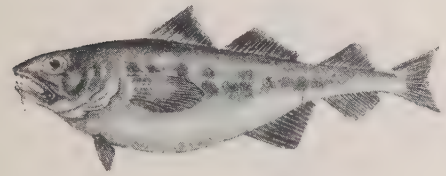
Slime flounder
Babagarei
Microstomus achne



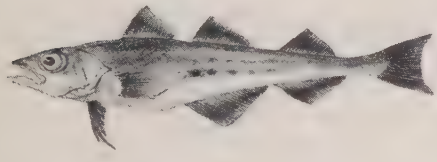
Fluke
Hireguro
Glyptocephalus stelleri



Cod
Madara
Gadus macrocephalus

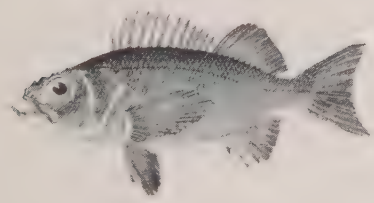


Alaska pollack
Sukesodara
Theragra chalcogramma

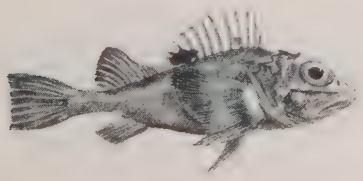


Atka mackerel
Hokke
Pleurogrammus azonus

(Rock fish)
Sankomenuke
Sebastes flameus



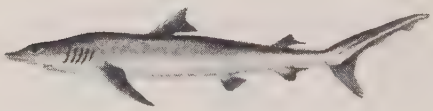
(Rock fish)
Kichiji
Sebastolobus macrochir



Sand fish
Hatahata
Arctoscopus japonicus

Deep sea smelt
Nigisu
Algentina semifasciata

Great blue shark
Yoshikirizame
Glyphis glaucus

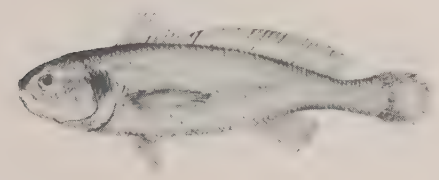


Salmon shark
Nezumizame
Lamna ditropis

Dog fish
Aburatsunozame
Squalus acanthias

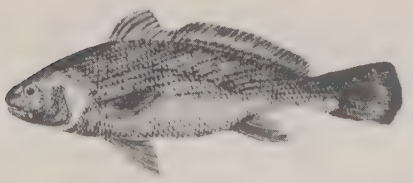
White croaker
Shiroguchi
Argyrosomus argentatus

Yellow croaker
Kinguchi
Pseudosciaena manchurica



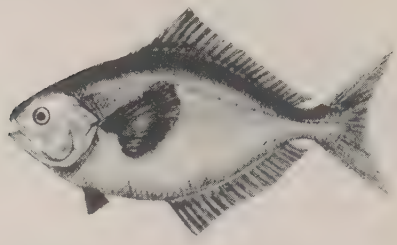
Black croaker
Kuroguchi
Argyrosomus nibe

(Croaker)
Honnibe
Miichthys imbricatus



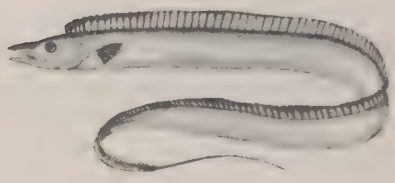
Lizard fish
Maeso
Saurida argyrophanes

Butter fish
Ibodai
Psenopsis anomala

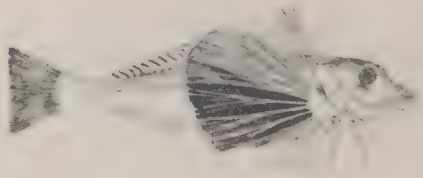


Sharp toothed eel
Hamo
Muraenesox cinereus

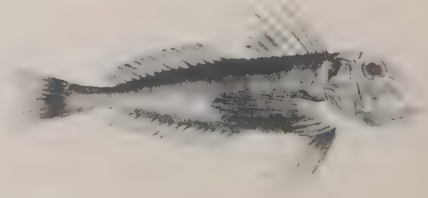
Hairtail
Tachiuo
Trichiurus lepturus



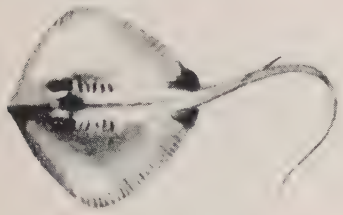
(Gurnard)
Hobo
Chelidonichthys kumu



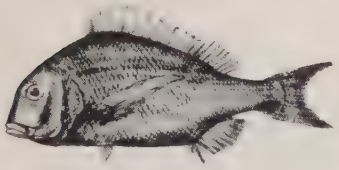
(Gurnard)
Kanagashira
Lepidotrigla microptera



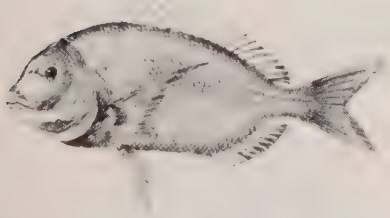
Stingray
Akaei
Dasyatis akajei



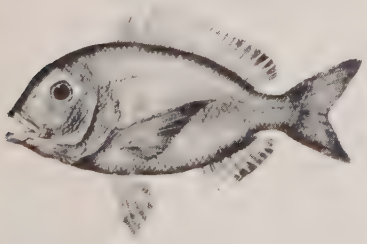
Red sea bream
Madai
Chrysophrys major



Crimson sea bream
Chidai
Evynnis japonica



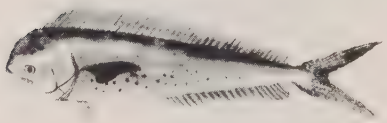
Yellow sea bream
Kidai
Taius tumifrons



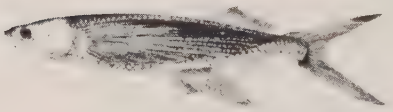
Black sea bream
Kurodai
Mylio macrocephalus

Spanish mackerel
Sawara
Scomberomorus niphonius

Dolphin fish
Shiira
Coryphaena hippurus



Flyingfish
Tobiuo
Prognichthys agoo

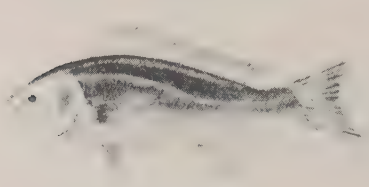


Mullet
Bora
Mugil cephalus

Common sea bass
Suzuki
Lateolabrax japonicus

Sand lance
Ikanago
Ammodytes personatus

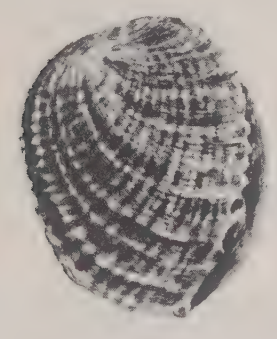
Striped pigfish
Isaki
Parapristipoma trilineatum



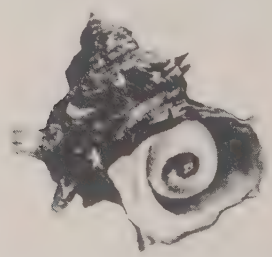
(Globe fish)
Torafugu
Fugu rubripes

C Shellfishes

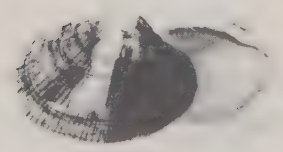
Abalone
Awabi
Haliotis gigantea



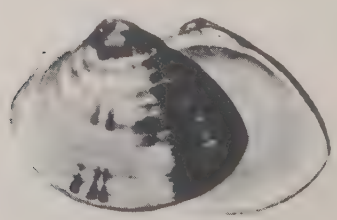
Top shell
Sazae
Turbo cornutus



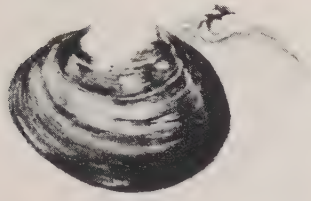
Short necked clam
Asari
Venerupis Philippinarum



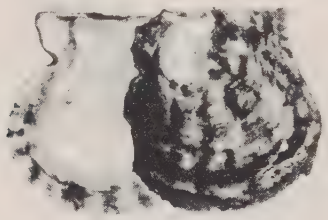
Hard clam
Hamaguri
Meretrix lusoria



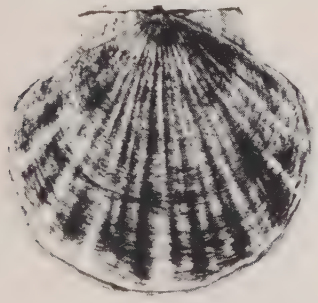
Hen clam
Hokkigai
Mactra sachalinensis



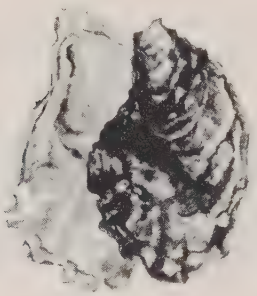
(Pearl Oyster)
Akoyagai
Pinctada martensii



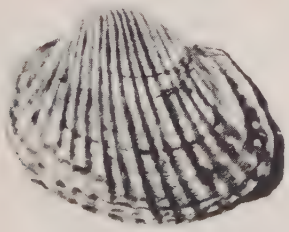
Common scallop
Hotategai
Pecton yessoensis



(Oyster)
Magaki
Crassostrea gigas

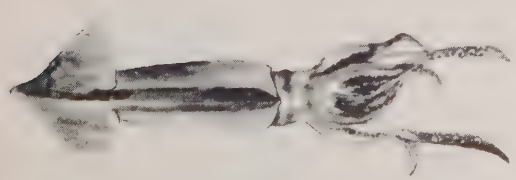


"Mogai" clam
Sarubo
Anadara subcrenata

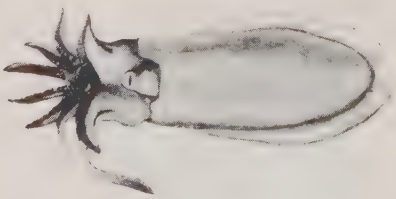


D Other Marine Animals

Common squid
Surumeika
Ommastrephes sloani pacificus



Cuttlefish
Maika
Sepiella maindronide

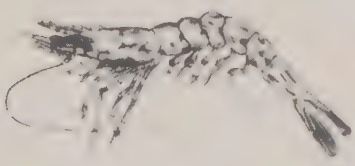


Octopus (Devilfish)
Madako
Octopus vulgaris

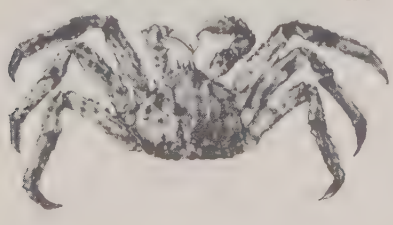
Spiny lobster
Iseebi
Panulirus japonicus

(Prawn)
Kurumaebi
Penaeus japonicus

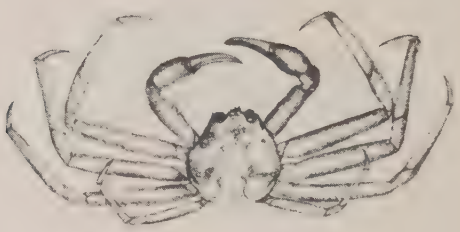
(Shrimp)
Akaebi
Metapenaeopsis barbatus



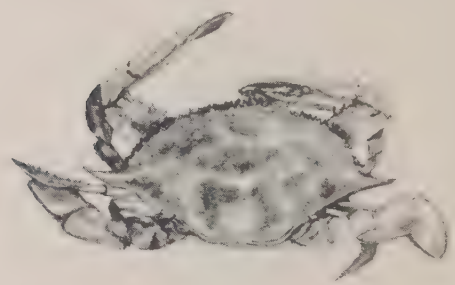
King crab
Tarabagani
Paralithodes camtschaticus



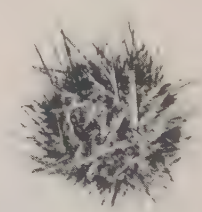
Red crab
Zuwaigani
Chionoecetes opilio



Blue crab
Gazami
Neptunus trituberculatus



(Sea urchin)
Murasakiuni
Heliocidaris crassispind



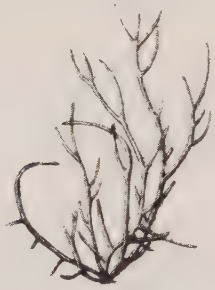
(Sea cucumber)
Manamako
Stichopus japonicus

(Jelly fish)
Bizenkurage
Rhopilema esculenta

E Seaweeds

(Kelp)
Makonbu
Laminaria japonica

(Seaweed)
Honfunori
Gloiopeltis tenax



(Seaweed)
Wakame
Undaria pinnatifida

(Seaweed)
Arame (Kajime)
Eisenia bicyclis

Agar-agar
Tengusa (Makusa)
Gelidium Amansii

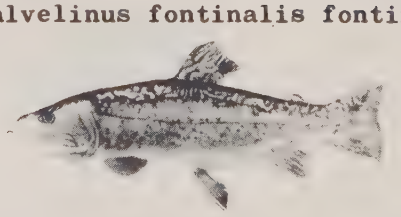
(Seaweed)
Asakusanori
Porphyra tenera

II Inland Water Fisheries

A Fishes

Rainbow trout
Nijimasu
Salmo gairdnerii irideus

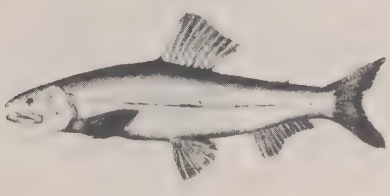
Brook trout
Kawamasu
Salvelinus fontinalis fontinali



Bull trout (mountain trout)
Iwana
Salvelinus pluvius

Pond-smelt
Wakasagi
Hypomesus olidus

Sweet fish
Ayu
Plecoglossus altivelis

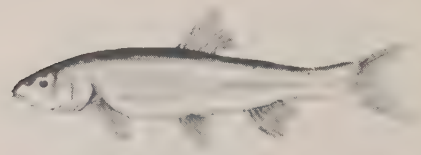


White bait
Shirauo
Salangichthys microdon

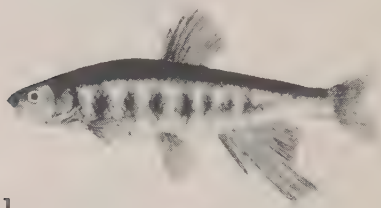
Common carp
Koi
Cyprinus carpio

Crucian carp
Funa
Carassius auratus

(Minnow)
Ugui
Tribolodon hakonensis hakonensis



(Minnow)
Oikawa
Zacco platypus



Eel
Unagi
Anguilla japonica

Loach
Dojo
Misgurnus anguillicaudatus

Goby
Mahaze
Achanthogobius flavimanus

Sculpin
Kajika
Cottus pollux

(Shiner)
Tanago
Acheilognathus moriokae

(Minnow)
Honmoroko
Gnathopogon caerulescens

Cat fish
Namazu
Parasilurus asotus

Lamprey
Kawayatsume
Entosphenus japonicus

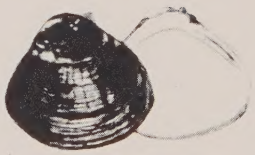
B Others

(Shrimp)
Nukaebi
Paratya compressa improvisa

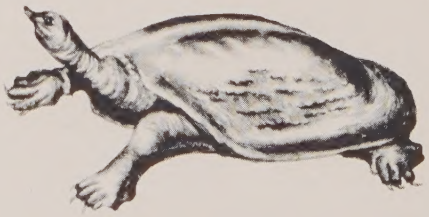
Opossum shrimp
Isazaami
Neomysis intermedia

Bull-frog
Ushigaeru
Rana catesbiana

(Corbicula)
Yamatoshijimi
Corbicula Japonica



Snapping turtle
Suppon
Amyda japonica



(Aquatic plant)
Kawanori
Prasiola japonica